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AMERICAN ATTITUDES TOWARDS TWO WORLD WARS 1914-1957

A lecture delivered
at the Naval War College
on 25 April 1957 by
Professor Ollinger Crenshaw

The popular historian and onetime eminent journalist, Mark Sullivan, has described in moving passages the impact upon American life of, and the American public's unreadiness for, the coming of the First World War in the late summer of 1914. Since the close of the American Civil War, the energies and talents of most Americans had been devoted to the completion of the national industrial plant, the building of the Continental railroad net, and the rounding out of a vast expanse from the Great Plains to California and Oregon. Immigration patterns shifted in the generation after 1865 to bring millions from Eastern and Southern Europe, people who manned the booming factories and mines, and who brought contributions of their cultures to the American melting pot.

In this busy era of preoccupation with internal affairs, Europe and Asia seemed remote indeed from the United States, in which the metropolitan press reported for the residents of the Atlantic Seaboard the life, the localized wars, the imperialism of that placid age. Historians call the decade of the 1880's "the Nadir of Diplomacy," and some contemporary critics called for the abolition of diplomatic representatives abroad as unnecessary extravagance. During the Nineties, however, there were stirrings of American interest in the role of the nation in the world — a nation which had reached the point of need for foreign markets, and a nation of which the Census Bureau could say in 1890 that the frontier had been closed.

It was during these years that a few voices were heard expounding new doctrines of foreign policy for the United States:

the need for markets, for colonies, for an isthmian canal, for a modern and powerful American Navy. Such ideas were championed by that "Scholar in Politics," Henry Cabot Lodge – Congressman and Senator from Massachusetts; the dynamic New Yorker, Theodore Roosevelt; Whitelaw Reid, publisher of *The New York Tribune;* and by Captain Alfred Thayer Mahan, United States Navy, a naval officer who became famous by writing books. The preachments of these new prophets, however, received impetus by the brief War with Spain in 1898 — "A Glorious Little War," as one of them, John Hay, described it. For that war brought in its train new problems, including the entry of the United States into world politics through the corridor of so-called "imperialism," and especially with regard to the disposition of the Philippine Islands, occupied by American forces at the close of the war. After a spirited thrashing-out of that problem, in which many of America's finest and most thoughtful citizens espoused the cause of anti-imperialism, the decision apparently was rendered in favor of pursuing the policy of imperialism — at least, for the indefinite future. It is instructive today, in the light of present-day full-fledged retreat of Western (if not Soviet) imperialism, to reread the arguments — pro and con — set forth in the early years of the twentieth century.

Rewards for that hero of the Spanish-American conflict, Theodore Roosevelt, included the Governorship of New York, the Vice Presidency, and, finally (through the assassination of President McKinley in 1901), the Presidency of the United States itself. President Roosevelt (a mere boy of 42 upon his accession), during his nearly eight years in the White House, attempted to educate the American people in the new responsibilities of the nation as a world power. In this work, as in his domestic policies of "trust-busting" and other reforms, he was only partially successful. But, at least a beginning was made through the President's intervention in the Russo-Japanese War as a peacemaker at Portsmouth in 1905 (not without its ensuing difficulties for Japanese-American relations), the Algeciras Conference of 1906,

his well-publicized employment in foreign affairs of "the big stick" in the Caribbean (and, occasionally, elsewhere), his intimate friendship with foreign ambassadors, and his direct correspondence with kings, emperors, and prime ministers.

Despite the course in foreign policy as taught (or, rather, preached) by President Roosevelt, with the White House as his soundingboard, it seems likely that, with the exception of the intellectual classes and the social groups in which the President moved, the American people concentrated more upon their own day-to-day domestic problems, and were beguiled by the rising progressivism rather than upon the fate of Korea or of Morocco. It is true that disturbing rumors were reported of alliance systems which by 1910 had divided Europe into hostile camps, and temblors of international diplomacy occasionally felt in the years before 1914, but in the United States the dramatic presidential campaign of 1912 was fought out by the three major contestants — President Taft (a sincere proponent of world law and peace), ex-President Theodore Roosevelt, and Governor Woodrow Wilson — with scarcely any mention of foreign affairs. The successful candidate, Governor Wilson, confidently expected that his administration should deal largely with domestic problems — and so it did for a brief time, from March 4, 1913 until August, 1914.

Such was something of the background of the American people when World War I brought to a close that comfortable post-Victorian epoch, that time when so many believed firmly in the doctrine of the "idea of progress." Without modern techniques of communication, President Wilson invoked for Americans what he called "neutrality in thought as in action." The public viewed with relief that moat of protection, the Atlantic Ocean, and thanked their stars that their forebears had had the good sense to emigrate to America. The ideas of Washington's Farewell Address of 1796, and the traditional program of neutrality, seemed quite adequate as 1914 turned into 1915.

At the same time, factors were in operation upon the American people, composed, as they were, of an older bloc of descendants from the British Isles or Northern Europe, British in language and culture, and also made up of more newly-arrived immigrants from Southern and Eastern Europe — many of them only slowly acquiring the veneer of Anglo-American civilization and retaining the sympathies and ties with their old countries — virtually all involved in "the great war," as it was called. As we know, American cities often were divided into areas and neighborhoods — their Yorkvilles, their Lithuanian or Polish quarters, their Ghettos, or their Little Italys. It is true that in the over-all picture from the outset predominant American opinion favored the Allies — Great Britain (to whom the nation owed its cultural base), France (to whom many felt a sentimental tie going back to the days of Lafayette and Rochambeau, although it must be confessed that the sentiment was even then wearing thin), and little Belgium, whose violation outraged American public opinion. An embarrassment for Allied sympathizers was the presence of Czarist Russia as one of the major powers on that side. Despite certain earlier episodes of marked friendship between Russia and the United States, the notorious tyranny of that absolutist monarchy, the suppression of freedom of opinion, the exiles to Siberia, the anti-Semitic persecutions, all created a profoundly unfavorable impression in the United States. Above everything, nonetheless, American opinion desired victory for the Western Allies of Great Britain and France.

By 1914, a formerly held sympathetic view of Germany was much altered, if not indeed completely reversed. It is well known that throughout the nineteenth century American scholars looked to the German universities for training and, for better or worse (some will think the latter!), the American system of higher learning derived from the German. German scientific research, music, and culture held a high rating among Americans, although during Wilhelm II's years, in the face of his sabre-rattling propensities, Germany became less popular in this coun-

try. Indeed, some, like former President Eliot of Harvard, by 1915 placed a low estimate upon the contributions of Germany in cultural and scientific fields.

Upon such groups, between 1914 and 1917, played other factors, among which may be cited propaganda emanating from both sides and the impact of economic forces upon the American economy. Very soon in 1914, despite initial efforts by Secretary of State William J. Bryan to discourage the flotation of loans by France and Great Britain in this country, the United States Government gave the "green light" to those hard-pressed and well-nigh exhausted nations, so that through J. P. Morgan and Company, American private investors had the opportunity of purchasing Allied securities. During 1914 (a year which saw a recession), American economy responded to the war orders from the Allies, with the consequent launching of a wartime "boom." The Germans also sold some bonds to Americans through the firm of Kuhn, Loeb & Company, but this was small by comparison with Allied funds obtained here, and the latter were expended here in munitions orders and other purchases. This situation, hooking the United States' economic life to the fate of the Allies, has been variously emphasized by subsequent writers, and will be referred to below.

The Germans loudly complained of this situation, which, because of the British fleet and the blockade of the European Continent, in effect made of the United States an Allied arsenal, and was seized upon by the Germans as justification (moral, if not legal) for opening their submarine campaign in 1915. In later years and in retrospect, American writers dwelt heavily upon the factor of British propaganda as tricking American entry into the war in 1917. It is established that definitely there *was* both Allied and German propaganda disseminated through the United States. The British, in particular, was well-timed and effective through understatement — although, through Allied control of the cables and by such documents as the Bryce report

dealing with German atrocities, overstatement was employed as well. In books of the "Now It Can Be Told" type, men like Sir Gilbert Parker and the Englishman, Arthur Ponsonby, in his *Falsehood in Wartime*, laid bare British propaganda techniques, and thus probably rendered Great Britain a disservice in a then unforseen desperate period yet to come. More of this, too, but it is significant that so worldly-wise a journalist as Kent Cooper, former head of the Associated Press, as recently as last year published a book, *The Right to Know*, in which he assigns a prominent role — if not, indeed, the decisive role — to propaganda in the involvement of the United States.

During those deadlocked years of 1914-1917, Americans on the whole desired Allied victory, the participation in wartime trade, American abstention from becoming a belligerent, and perhaps remotely feared a world dominated by the unpopular and militaristic Wilhelm II. They elected President Wilson again in 1916 over the eminent Judge Hughes, whose campaign suffered from ambiguities as to the program he would offer as alternative to that of President Wilson, who had benefited from the billboard campaign advertisements of 1916, which read, "He kept us out of war." People forgot the qualifications which President Wilson made in that regard.

In those tense years the German submarine campaign, unleashed in February of 1915, brought several crises — including that of the *Lusitania* sinking — but they were more or less satisfactorily handled through diplomacy by President Wilson. The Germans justified on moral grounds their submarine activity as a means of breaking the strangulation of the Allied blockade, and as a protest against admitted violations by the British of international law, until the beginning of 1917. In the face of everything else, it appears unlikely that the United States' leadership or opinion was favorable to a declaration of war, and it is hard to see how it could have been brought about without the reintroduction of unrestricted submarine warfare in 1917. The Germans

miscalculated badly in 1917 regarding America, as they were to do again from 1939 to 1941.

With the failure of President Wilson's "Peace Without Victory" address of January, 1917 — in which he sketched terms of a durable peace and foreshadowed the League of Nations — and with the announcement of the resumption of submarine warfare, American determination to remain aloof was ended. It became a matter of weeks before the sinkings of belligerent ships with Americans aboard — and even of American vessels in the forbidden zones — would begin. Ambassador von Bernstorff was sent home. The President asked for authority to arm American merchant vessels in February, 1917, and, although filibustered against by the "little group of willful men" who blocked this request in the Senate, actually proceeded to arm the ships anyhow under an antique statute dating from the 1790's.

The special session of April, 1917, was moved up, and the President emerged as a new world leader in his eloquent address asking for war against the Central Powers. Beginning on this occasion, his phrases hurtled throughout the world to friend and foe alike — with the expert assistance of the Committee of Public Information, headed by the late George Creel, a liberal journalist. Not only was the American public treated to a barrage of five-minute speeches on patriotic themes in moving picture houses, but professors (some of whom later recanted and regretted their excessive patriotism), preachers, and professional men gave their services in the cause of better acquainting the apathetic public with the war aims of the United States and our associates, the Allies. Excerpts from President Wilson's addresses, and other materials, were conveniently printed in "red, white, and blue" pamphlets for wide distribution and for promoting the sale of Liberty Bonds to finance the war.

Obviously, it was believed that the people stood in need of such indoctrination. Creel's committee did a very good job, here and abroad; in fact, they did too good a job by over-selling the

peoples of the world on the idea that the postwar world would usher in some kind of millenium of a just and lasting peace, with President Wilson as its prophet. The central theme was embodied by President Wilson in the celebrated "Fourteen Points," effectively employed for propaganda purposes among the peoples of Allied and enemy nations. The European masses ecstatically awaited the unfolding of the new order in which, of course, they also desired the fulfillment of nationalistic aspirations. The Germans, after the turn of the tide of the war in the summer and fall of 1918, sought to salvage something from the generous terms of the "Fourteen Points." President Wilson was hailed by European masses — especially by the French and Italians — in his triumphal European Tour, while waiting for the Paris Peace Conference to begin.

Already danger signs had begun to appear, even before the surrender of the Central Powers, the flight of the Kaiser to Doorn, and the organization of an acceptable German government. President Wilson, just at the moment of supreme triumph, mistakenly (as some thought) breached the bipartisanship in 1918 by calling for the election of a Democratic Congress, whereupon the voters furnished him with a Republican Congress. He decided to go in person to Paris, and he appointed an unimpressive delegation to the Peace Conference. As one malicious critic put it: "He appointed himself four times, and Henry White." Criticism thus developed even before Wilson sailed for France, but, after the Conference began and the divergent peace aspirations of the victors began to emerge, it mounted to crescendo. This, President Wilson sought to allay upon his temporary return to the United States in February and March of 1919. When the text of the Treaty and of the League became known in this country — and their inextricable relationship — opposition stiffened.

Despite Wilson's victory in obtaining his League of Nations, and the fact that there was much good in the Treaty (as professor Birdsall pointed out in his book appearing in 1940), to-

gether with the fact that probably a large majority of Americans wished to ratify some kind of a peace treaty and League, the opposition — led by so-called "Irreconcilables" (or "Bitter-enders"), dwelling upon the weaknesses, the compromises, and the least defensible portions of the treaty, and shrewdly practicing tactics of delay during the summer and fall of 1919 — gradually turned the tide against the Wilson program. Another device was the use of amendments and reservations. The so-called Lodge Reservations were rejected by President Wilson, and a sufficient number of senators refused to accept the Treaty and League without them. Meanwhile, partisanship operated in all these matters, with a view to the defeat of Wilsonism in 1920. The President collapsed while on tour in support of his program, and there was none to replace him. By March, 1920, the Senate rejected the Wilson peace and adjourned *sine die.*

By then the tide had been reversed further in the United States, and the voters overwhelmingly turned to the Apostle of Normalcy, Senator Harding. Wilson's star fell into eclipse during the twenties and thirties, and with it his program. President Harding and Coolidge turned to other approaches to the problem of world peace. However, during the twenties not only the Peace of Versailles and Wilsonism fell into disrepute but the whole matter of American intervention into the First World War followed suit. It became difficult to collect the war debts of more than ten billions, and a segment of the American press and opinion — led by William Randolph Hearst, Senior — became increasingly nationalistic.

Meanwhile, in Europe, — even before the Versailles Conference — the newly dominant Bolshevik government of Lenin and Trotsky published to the world secret diplomatic archives of the Czarist regime. These bared the famous secret treaties between Great Britain, France, and Russia on the one hand and Japan and Italy on the other in dividing the spoils of war. This action, followed by the inclusion in the Treaty of Versailles of the

well-known Section 231 — the "war guilt" clause — embittered the Germans, who, encouraged by criticism of the entire treaty, began in the twenties a movement among scholars and journalists which denied that guilt and looked toward the eventual revision — if not the overthrow — of the terms imposed by the victors. It was natural that the vanquished should desire this to come about, and they were aided by Socialists on the Continent, by Leftists, Radicals, Communists, and by the Laborites of Great Britain. The penetrating analysis and critique of the Treaty from John Maynard Keynes, *Economic Consequences of the Peace*, which appeared in 1921, contained so unflattering a portrayal of President Wilson's role at Versailles that it was deleted from the American edition of that book — said by some observers to be one of the most influential books of the twentieth century, and widely read and admired in the United States.

During the twenties, a number of scholars, historians, and publicists reexamined the origins of the First World War on the basis of German and Russian published documents, and, influenced probably by the postwar climate of thought characterized by disillusionment and disappointment, in varying degrees concluded that the guilt for bringing on that conflict was (or should be) apportioned heavily among both sides, with Russia and France coming in for critical treatment. Thus Harry Elmer Barnes, a prolific professor-journalist, brought out his *Genesis of the World War* (1928), which was followed by Professor Sidney B. Fay's more careful and conservative *Origins of the World War* (2 vols., 1929). American intellectuals, having expected so much from the Wilson program, turned from its failures with great bitterness — which inspection of the files of the *New Republic* and of Oswald Garrison Villard's *Nation* will show.

Reaching a wider public in America in the twenties and thirties were writings of novelists, the showing of moving pictures, magazine articles, all of which built up a cynical attitude toward America's first crusade and opened up a field for such satirists

as H. L. Mencken, whose *American Mercury* (a veritable *vade mecum* for the intelligentsia of the twenties) poured unmitigated scorn upon "Dr. Wilson" and all his works. The casual views of Sinclair Lewis' characters expressed in such popular works as *Main Street* (1920) and *Babbitt* (1923) reflect a suspicion of Europe and of internationalism. Ernest Hemingway's several novels, Lawrence Stallings' plays, and Erich Maria Remarque's *All Quiet on the Western Front* depicted to a receptnve public the brutality and senselessness of war.

Many of these interpretations had gained wide currency in the America of the twenties and were in vogue at the time that the Stock Market Crash of 1929 brought sharper problems to the fore. They seemed to underscore the failures of Wilsonism, with the repudiation of the war debts in the early thirties, the rise of Far Eastern aggression in the Manchurian episode of 1931-32, and the emergence of dangerous aggressors in Europe. The inadequacies of the League of Nations were glaringly plain, and, with depression deepening yearly during the early thirties, Americans turned with ferocity on what they believed (or were soon told) had inveigled or tricked them into the war that would "make the world safe for democracy."

With nothing but war debts repudiated, the rise of fierce aggressors in Europe and Asia, and the hatred and ingratitude of Europeans, many Americans were receptive to interpretations that were set forth by a new school of American historians and journalists who came to be called "the Revisionists." They were led off by C. Hartley Grattan in 1929, whose *Why We Fought* laid down the outlines to be rounded out by fuller treatment later in the decade by the more popular book, *Road to War* (1935) by the journalist Walter Millis, which was adopted by the Book of the Month Club and placed on hundreds of American library tables. Millis' account, brilliantly written, emphasizes forces at work to draw a reluctant America into war in 1917, the economic

factors at work to enrich the munition makers, downgrades President Wilson and Colonel House, and makes it plain that Americans really did not want war. Millis' book, read even today, is still persuasive, and was in tune with the public sentiment of its time. H. C. Peterson's *Propaganda for War* (1938) was another Revisionist interpretation, stressing how Americans were tricked by British Propaganda. There were such lurid titles as *Merchants of Death* to lay bare the villainy of international bankers and munitions manufacturers. A few books such as Charles Seymour's studies and Newton D. Baker's little volume defended the Wilson policies, but went unheeded.

In the midst of this state of semipopular books on this theme, much source material was made available in the celebrated investigation of the Nye Committee of the United States Senate, with its vivid headlines from testimony adduced from witnesses to show that the great bankers and munitions-makers had reaped a rich harvest of profits, but that the nation had reaped grim disaster. In passing, it may be noted that the brilliant young legal counsel for the Nye Committee was one Alger Hiss, of whom more was to be heard later. A circus was had by the press at the Nye Hearings, replete with J. P. Morgan himself with a midget placed in his lap.

The picture was completed during the later thirties when Professor Charles C. Tansill brought together in a heavily documented and massive tome *America Goes to War* (1938), the scholarly last word of revisionism.

It was during these same years that there emerged as popular leader in the United States Franklin D. Roosevelt, a one-time ardent Wilsonian internationalist, to grapple with the problems of depression at home, with the mounting foreign problems posed by the rise of Hitler, and the aggressions of the Italian dictator, Mussolini — quiescent since his march on Rome in 1922, but erupting in disturbing fashion in 1935 in Ethiopia. During

this time President Roosevelt's "New Deal" domestic program looked inward rather than outward, and among his supporters he was able to count in the presidential election of 1932 — but in some cases not long afterward — such isolationists as Senator Hiram Johnson of California; Senator Bronson Cutting; Senator Norris; Senator LaFollette, Jr.; the publisher, William Randolph Hearst; Harold L. Ickes, and others.

The lesson drawn from the various writings and investigations by Americans of all walks in life was this: America had been duped, tricked, and well-nigh ruined by its participation in the World War, and, with few dissenting voices concluded, "Never again!" But the question was: How could America be rendered impervious to such duplicity and insulated from future conflagrations, signs of which were on the horizon? The so-called "isolationist group," with comparatively little dissent either in Congress or from the President himself, prepared and put through Congress with large majorities during the period from 1935 to 1939 the so-called "new neutrality" legislation, which in effect (together with the Johnson Act of 1934) would prevent belligerent nations from repeating their villanies of 1914-1917; debtors in default to the United States could not borrow in this country; United States citizens were to be warned to sail on armed or unarmed belligerent vessels in wartime at their own risk (a belated vindication of Secretary Bryan's position in 1915); embargoed arms and munitions to belligerents required the registration and licensing of those engaged in manufacturing. Later versions of neutrality legislation added the "cash and carry" clause, designed to prevent incidents involving American ships and property, and, in general, tended to create an inflexible and permanent protection of U. S. neutrality behind an impenetrable legislative barrier.

Although the Congress reflected American opinion in these laws, certain internationalists complained that instead of keeping the United States out of war, the program would render that more likely through encouraging heavily-armed aggressors such

as Hitler and Mussolini. Such expressions came from *The New York Times* and from the alert observer of world conditions, Henry L. Stimson. President Roosevelt himself — not willing to stand against the tide, although privately critical of the legislation — contented himself with mild criticisms, and did not attempt to rally public opinion against the neutrality laws.

Unfortunately, in the thirties, when we were translating the lessons of 1914 to 1917 into a legislative bulwark, an ominous series of aggressions disturbed Europe and Asia: from the Japanese-Manchurian incident of 1931 through Ethiopia, and Hitler's actions in violation of the Versailles Treaty — all leading to Munich, the outbreak of World War II, and Pearl Harbor. Thus, it appears that because of an entirely different set of conditions from 1933 to 1941, the country had prepared to insulate itself perfectly against the situations of 1914-17. It began to dawn upon some Americans that the lessons learned were inapplicable in the new conditions, and, indeed, that we had learned the wrong set of lessons! This collision of our entire pattern of thinking as expressed in the neutrality legislation with realities necessitated altering policies after 1939, and more especially after the spring of 1940. Soon it was to be a case of pulling down (though not completely until the fall of 1941) the laboriously erected structure. But the collision of world events with the program forced the latter to give way.

Doubtless Americans were more prepared than in 1914 for the outbreak of war in that September of 1939 — when Hitler's mechanized units rolled over Poland, and when President Roosevelt's radio proclamation and statement did not echo Wilson's advice to remain neutral in thought and in action. But the overwhelming majority of our people held to the traditional concept of neutrality, and ardently desired to stay out of the conflict. Yet, Congressional opinion had veered to the extent of revising the neutrality laws to remove the arms embargo feature, after an

eloquent plea by the President and after a heated debate in Congress. The Second World War in its initial months gave evidence of becoming a repeat performance of World War I, what with the French securely behind the Maginot Line and boasting "the finest army in the world." Henry Ford and others spoke of "the phony war," but they did not have long to wait before Hitler demonstrated the incorrectness of that view as, in the spring of 1940, he swooped down upon helpless Norway and overran unoffending Denmark. With the world watching breathlessly, his forces next attacked Belgium and the Netherlands, rendered the Maginot Line ineffective, drove the British to the beaches of Dunkirk, and routed the French army.

Scarcely any event in modern history so thoroughly disturbed Americans. In those frenzied weeks of May and June, 1940, Ambassador William C. Bullitt frantically talked on the trans-Atlantic telephone with President Roosevelt, and Premier Reynaud of France importuned the President for clouds of planes. With France reeling, Mussolini sprang upon his helpless neighbor — despite direct and personal appeals from President Roosevelt to stay this act. Mr. Roosevelt, invited to deliver the commencement address at the University of Virginia that June (where "Junior" was slated to get a degree), used the speech to deliver some biting phrases at Mussolini's expense — the "stab in the back" speech. Back in Washington the news of the war became worse, rather than better, with the unheard of spectre of the probable invasion of Great Britain by Hitler, the possible fall of that great State, and the taking over of the British fleet through some type of "Quisling" government.

Urgent measures were resorted to during the summer and fall of 1940, such as the bases-destroyers deal, huge appropriations for army, navy, and air force, the passage of the Burke-Wadsworth Act providing for the first peacetime conscription in American history, and the replacement of the Secretaries of War and Navy by two eminent Republican leaders whose appointments gave co-

lor to bipartisanship in the crisis of 1940, a year which just happened to be a presidential election year. As the proposed measures emanated from the administration, it was inevitable that partisanship played some role in the opposition as well as that deep feeling of determination to stay out of war — any war — which sentiment has already been described. In each of the issues, however, the President had support either from a majority in Congress or from the Republican Candidate for President, Wendell L. Willkie.

That 1940 was a presidential election year complicated matters for President Roosevelt, a third-term candidate, whose policy of all aid to Great Britain, short of war, and whose boldness was distinctly tempered from July to November, 1940. Some were accusing Roosevelt of plotting war, while others became impatient at his caution. His course during 1940 and 1941, as near as available measurements enable us to judge, was generally supported by a majority of his countrymen, although some of his campaign speeches — as well as those of Mr. Willkie — were aimed at the antiwar vote. The President's Boston address at the end of the campaign was especially pointed, as he intoned "again, and again, and again" to the parents of prospective members of the armed forces. For this, he was sharply assailed by critics in after years.

During 1940, the so-called "Great Debate" raged for public opinion between those groups and individuals who favored all-out aid to Britain, to keep war away from our shores or, if need be, at the risk of war on the one hand, and those groups on the other hand which may be broadly lumped together as the anti- or noninterventionists, frequently called "isolationists" (a term gradually acquiring an invidious meaning), who desired to preserve American neutrality at nearly all costs, and some of whom (such as Colonel Lindbergh and his brilliant wife) were ready to write off Great Britain, who thought we could go it alone with our American Continents and resources, and who believed that Hitler did not have plans to attack the United States —

but that if he did, he could be taken care of. The noninterventionists were usually ready to arm the nation and to protect the bastion of the Americas.

The "Aid to Britain" people felt deeply that American interests demanded that Great Britain be preserved at all hazards, and there were some who believed in positive action to aid her — even American intervention in the war. Outspoken interventionists usually were circumspect, conferring in committees such as the "Century Group" or the "Fight for Freedom Committee." Broader based, and embodying varying shades of opinion, was the "Committee to Defend America by Aid to the Allies," headed by the popular Kansas editor, William Allen White. Mr. White, in common with many of his fellow countrymen, had rather gone far along with the type of thinking prevalent in the country. He had gone along with Walter Millis' thesis about World War I in a review article he wrote in 1935, showing his disillusionment with that first venture. By 1940, however, he was ready to lead the Committee to Aid the Allies, reasoning (with yet a touch of his noninterventionism lingering) that aid to Britain would "keep the war away from America." The White Committee numbered in its many chapters formed during 1940 and 1941 distinguished clergymen, educators, some members of Congress, business men, financiers, journalists, writers, etc. The story of the White Committee's role in the critical years in mobilizing American opinion has been ably told by Professor Walter Johnson of the University of Chicago. Before many weeks passed, it became plain that two distinct factions existed within the White Committee: one group, positive action men, led by the playwright and presidential speech-maker, Robert E. Sherwood and Secretary Stimson of the Roosevelt Cabinet, who increasingly advocated bolder and riskier steps to help Britain and even came close to intervention itself.

The other faction of the committee was headed by Mr. White, who advocated such a policy as Lend-Lease as a measure

to keep America out of, and not get the country into, the war. Eventually, Mr. White resigned from the committee chairmanship in a public letter of December, 1940: "The only reason in God's world that I am in this organization is to keep this country out of war . . . ." After saying he was still in favor of several strong features of the neutrality laws, he stated: "If I were making a motto for the committee it would be: 'The Yanks Are Not Coming,' " an unpalatable slogan to such associates as Clark Eichelberger, Bishop Hobson of Ohio, and Doctor Nicholas Murray Butler. Eventually, the committee came out for intervention — by June of 1941. Professor Johnson has described the work of the committee to win opinion to its views by large newspaper advertisements, radio addresses, and programs sponsored by the chapters.

Championing the "isolationist" viewpoint in "the battle of the committees" was the "America First Committee," which had its inception in a group of Yale law students, headed by R. Douglas Stuart, Jr., of Chicago, but established in the fall of 1940 under the chairmanship of General R. E. Wood — Quartermaster General of the United States Army in the First World War, and then a top executive of Sears, Roebuck & Co. It laid down its creed: abstention from European wars; strong internal defense; making democracy prosperous and effective at home; keeping our nationals and ships out of war zones; humanitarian measures of relief to the suffering of occupied countries; and, finally, a "referendum" to advise Congress when it should face the issue of war and peace. The item was presented in a resolution to Congress by Congressman Ludlow of Indiana, but was blocked by strong administration pressure.

Among prominent American Leaders associated or sympathizing with "America First" were ex-President Herbert Hoover, Senator Robert A. Taft, Colonel Charles A. Lindbergh (America's most recent hero, who lost his laurels in the political arena), and numerous members of the Congress such as Senator Hiram

W. Johnson, Senator LaFollette, Jr., Senator Gerald P. Nye, Senator Bennett C. Clark of Missouri, Senator D. Worth Clark of Idaho, Senator Rush D. Holt of West Virginia, and Representatives George H. Tinkham, Hamilton Fish, Joseph W. Martin, and others. Notable among the noninterventionists was Senator Arthur H. Vandenberg of Michigan, who, later, during the war, was to execute a famous about-face on the subject of internationalism. A vigorous proponent of the viewpoint of the "America First" people was the historian and political scientist, Doctor Charles A. Beard. Through his numerous writings Professor Beard espoused what he called "Continentalism," and, during the years 1940-41, he personally testified before Congress in opposition to Lend-Lease.

Among other noninterventionists, some of whom either were unwelcome as liabilities to the "America First Committee" or whose motivations varied, may be mentioned Norman Thomas, of strong peace leanings; certain pro-Nazi sympathizers, like the notorious Fritz Kuhn — a brown-shirted strutter; and, for a time up to June 22, 1941, the American Communists, who loudly flayed the "imperialist" war until it became "A Peoples' Crusade" after June 22, 1941. Without doubt, many of the noninterventionists were sincere and patriotic. Their numbers were quite large up to the day of Pearl Harbor, and at times the bloc in Congress rolled up large minority votes against the successive Roosevelt proposals which increasingly moved the United States from the role of "neutral" in the old sense into that of nonbelligerent and cobelligerent — a status unknown to international law. It seems true, also, to say that circumstances placed "America First" and other anti-intervention groups on the same side with Hitler, whose many outrageous policies incensed Americans.

The battle over isolation and intervention might be yet raging but for the fact that Japanese bombs fell on Pearl Harbor, silencing the Great Debate and destroying completely "America

First." During the course of World War II, the critics of Roosevelt's foreign policy were silenced, but some of them bided their time when they might obtain a hearing in postwar years. In the war years, most books and articles set forth the administration (or internationalist) point of view, some of them — like Forrest Davis and Ernest K. Lindley's *How War Came* — officially or unofficially inspired. Numerous members of the administration compiled diaries or memoirs for publication shortly after the close of the war. Notable among these are Stimson's *On Active Service in Peace and War,* Hull's Memoirs, Miss Perkin's study of Franklin D. Roosevelt, and many others.

During the war, thought was given to the postwar peace plans and, as military matters and grand strategy receded with the successful course of the war, Americans began to hope that "this time" we should not fail as in 1919. We and our leaders were optimistic about the postwar world in which the Big Three — Great Britain, the Soviet Union, and the United States — would collaborate for a just and lasting peace. Occasionally a warning note was sounded, as when Professor Carl Becker of Cornell published a thoughtful book, *How New Will the Better World Be?* The succession of wartime conferences on the highest level, from Casablanca to Yalta, dwelt with global peace problems, and President Roosevelt himself felt exuberant about postwar prospects in his last public appearance upon his return from Yalta.

But disillusionment has a way of following wars, and the failures of the peace after the fall of Germany and Japan set in motion a new wave of critics, who, beginning in 1947, have presented an interpretation of diplomacy leading up to Pearl Harbor – of wartime diplomacy and high-level strategy, and of postwar diplomacy, with its failures and frustrations, that takes sharp issue with the official, internationalist line of interpretation, and which, for convenience, we may call "the new revisionism." Just

as the spokesman of the Roosevelt administration often or sometimes either were or had been recipients of office from that administration, it is plain that the "new revisionist" writers were without exception (save for some disillusioned former members like ex-Ambassador Bullitt) former opponents of the Roosevelt policy (such as Doctor Beard), who now — from 1947 — could resume the attack.

And resume the attack they did in a most vigorous fashion! Two books by Professor Beard indicted the Roosevelt foreign policy from 1932 through Pearl Harbor; George Morgenstern of the *Chicago Tribune* brought out the first of a number of critiques on the subject, *Pearl Harbor;* and that old veteran of World War I revisionism, Harry Elmer Barnes, fiercely assailed the entire Roosevelt foreign policy in a tome he edited, called *Perpetual War for Perpetual Peace,* published in various new editions. Frederic R. Sanborn's *Design for War,* and Professor Charles C. Tansill's *Back Door to War,* present a severe indictment of Roosevelt's allegedly Machiavellian tactics ending at Pearl Harbor. Dr. Tansill's work, heavily documented — though containing valuable material — suffers somewhat from emotionalism and overstatement. It does for World War II what the same author's *America Goes to War* did for President Wilson, although accelerated in emotion.

One of the more rational and persuasive of the "new revisionist" writers is the journalist, William Henry Chamberlain, author of many books, one-time authority on Russia, and whose *America's Second Crusade* (1950) dwells particularly upon the diplomatic history of the Second World War resulting in diplomatic blunders and frustrations. Mr. Chamberlain links up the so-called "second crusade" with the first, but is milder than some in his handling of both wars. It should be observed that a number of the "new revisionist" histories have been published by the Henry Regnery Company of Chicago, and another publishing house to do likewise is the Devin-Adair Company of New York. In any list

of the harshest critics of President Roosevelt's foreign and domestic policies the name of John T. Flynn should be cited. One-time liberal columnist on banking and financial problems for the *New Republic* magazine, Flynn's several books scathingly denounce F. D. R. and all his works.

By far the best known of the "new revisionists" was the late eminent political scientist and historian, Professor Charles A. Beard, who stated his case against Roosevelt foreign policies in two books published after the close of the Second World War. Dr. Beard's fame and reputation were so great with Americans (indeed, he probably was the only historian known to many) that it caused fear lest, unanswered, the public might accept his sweeping indictment of the Roosevelt administration's foreign policies. Professor Basil Rauch of Columbia hastened to answer the Beard arguments in his *From Munich to Pearl Harbor* (1950), while Professor S. E. Morison of Harvard composed one of the most devastating polemics in attacking Beard's views in an article in the *Atlantic Monthly* for August, 1948, entitled "History Through a Beard."

Having identified some of the prominent writers of the "new revisionist" school of interpretation, a brief statement of the leading ideas and theses and criticisms becomes pertinent. First of all, the Roosevelt policies from 1939 — and, especially from the spring of 1940 — are charged with leading the unwilling country on to war, step by step, gradually, all the while the President reassured the country as to his peacelike intentions. Part of the deception, so the argument runs, includes such acts as the bases-destroyers deal, the President's promises in the campaign of 1940, Lend-Lease, convoying, shoot-at-sight orders, and virtually everything to Pearl Harbor — including American Far Eastern policy in these years and the breakdown of the Hull-Nomura-Kurusu talks, intended to provoke the Japanese through the alleged "ultimatum" of November 26, 1941, which would lead to war.

In seeking an explanation of the complete success of the Japanese in their Pearl Harbor attack, these writers have evolved the thesis that President Roosevelt "planned it that way." According to this argument, and with the collusion of General Marshall and Admiral Stark, the President deliberately withheld vital information from the Pearl Harbor commanders, and left the fleet exposed as a bait to lure the Japanese into the act of striking there — thus obtaining a "back door" entrance into the war against Hitler. The shocking and successful Japanese attack would also destroy the isolationist opposition, concededly strong, and would solidify public opinion behind the American war effort. Surely these are extreme and even monstrous charges which, in general, American historians have not accepted as established by proof. We know that there were amazing blunders on the part of Washington authorities, and there are suspicious circumstances which have not been explained. Recently, when James Michener, author of "South Pacific" reviewed Walter Lord's *Day of Infamy*, he remarked that Mr. Lord had described well what happened at Pearl Harbor on December 7, but had left untouched what had happened at Washington in the days and weeks preceding, and added that scholars had not begun a searching analysis of that important aspect of the tragedy.

Carrying their criticisms beyond Pearl Harbor into the diplomacy of the war, the "new revisionists" assailed the increasing concessions to the Soviet Union, which culminated in the Yalta Agreements, and, again, severe charges which even included treason subsequently came out. Mistakes there were at Yalta, but that episode must be examined in the context of the time, when American leaders were acting upon the assumption (false, it turned out to be) that the United States and the Soviet Union could and would work together for that just and lasting peace which had eluded the world following the Peace of Paris in 1919. We should be cautious in attributing to that Conference all the disasters consequent to the Yalta meeting, especially in Poland and in the Far

East, for conditions — military and geographic — may have conduced to the identical and unfortunate results.

Further ammunition has been furnished the "new revisionist" viewpoint in the disastrous fate of Nationalist China in the postwar years, while Korea furnishes an even more recent episode. And yet — unlike their predecessors in "revisionism" of the 1920's and 1930's who carried the day, and in the face of bitter postwar disappointments — the American public apparently has not been much interested in the sensational and bitter analysis of the latter-day "revisionists." The fact is that the onset of even more urgent problems since V-J Day has tended to deflect the wider public from paying much attention to the blunders and alleged crimes of years ago. Partisanship, too, was never far absent from the scene — as dislike of the "New Deal" domestic policies colored attitudes of the critics, many of whom were very far to the right in their views.

Nor was the official side of the Roosevelt prewar and wartime diplomacy neglected. The monumental volumes of Professors William L. Langer and S. Everett Gleason afford a basis of comparison and contrast in reviewing the period from 1937 to 1941. American liberals, so bitterly disillusioned with the Wilson program and who warmly supported the "revisionists" in the twenties and thirties, had no truck with the "new revisionists" in the post-World War II era.

Unquestionably, "revisionist" history has value in bringing out the mistakes of the past, and it will contribute to a more correct and balanced interpretation than we might otherwise have. Its chief flaw is its emotion-charged ferocity, which the wary reader should recognize and discount. It would be well for the reader of such literature first to identify the general approach of authors to determine which camp they may be in. Finally, readers seeking truth of these unfortunate years should as far as they can divest themselves of passion and prejudice, difficult though that may be.

BIOGRAPHIC SKETCH

Professor Ollinger Crenshaw

Professor Crenshaw received his A.B. and A.M. degrees from Washington and Lee University, and his Ph.D. degree from Johns Hopkins University.

He was an instructor in history at Washington and Lee University from 1926 to 1929, Assistant Professor of History from 1930 to 1941, and Associate Professor of History from 1941 to 1947. He was on leave of absence from there from 1945 to 1947, during which time he was engaged in research. Upon his return to Washington and Lee University, he became Professor of History, which position he presently holds.

Professor Crenshaw was an instructor in government at the College of William and Mary during the summers of 1929 and 1930, and a lecturer in history at the University of Wisconsin in the summer of 1948. He also served in the position of Visiting Professor of History at West Virginia University in the summer of 1950 and at Johns Hopkins University during the summer of 1952.

He occupied the Ernest J. King Chair of Maritime History at the Naval War College during Academic Year 1956-1957.

Professor Crenshaw is the author of *The Slave States in the Presidential Election of* 1860, and has contributed articles and reviews to various historical journals.

MILITARY DECISION FROM THE VIEWPOINT OF GAME THEORY

A paper written by
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INTRODUCTION

The vital importance of correct decisions in military affairs makes it highly desirable that all possible assistance be furnished to the Commander responsible for making the decision. The Commander's Staff was evolved for this purpose. Manuals are also furnished, suggesting the steps the Commander should go through prior to making his decision to insure that nothing is overlooked or neglected.

The detailed estimate of a situation may indicate the desirability of one course of action so overwhelmingly that the actual decision is a mere formality. However, when the estimate is not thus clear, the Commander must rely in the final analysis on his own judgment, past experience, training, and traits of mind. It is situations of this kind that give importance to the study of military history, formal study at War Colleges, peacetime exercises, and the like. All this is done in the hope that the Commander will, in times of stress, draw on all of his mental resources to formulate decisions which will prove to be sound after the event.

Because of their awareness of its importance, the military services became students of the decision-making process many years ago. Economic interests and the academic world were far behind in realizing its significance. But, as their awareness has grown, so has their work on the subject. Today, there is much

of value to the military planner to be found in the work of other social disciplines.

Military decisions are made in what is known as a "conflict situation"; that is, one side has goals and desires opposed to those of the other side. The same conflict exists in politics, business, games, and many other activities. Students have been studying such situations for years with the object of trying to determine what each side can expect to gain in view of the opposing interests.

Recently, these speculations were given a tremendous boost toward practical usage by the publication of the monumental *Theory of Games and Economic Behavior* by von Neumann and Morgenstern in 1944. Here, for the first time, some of the simpler conflict situations were subjected to rigorous mathematical analysis and proof of the theorems which predict the result. Since that time, numerous other scholars have built on this foundation. Practical application of the theory has been made in tactical situations, weapons system analysis, logistics, and economics. More important to the military planner, the implications of the theory can be brought to bear on situations more complicated and less precise than those to which it was originally applied. Many of these conclusions are tentative and limited in scope. Much work remains to be done in applying the Theory of Games to military decision. But, much as we dislike placing another technical straw on the burden of the present-day Naval officer, it appears that the time is coming — if it is not already here — when he should have some knowledge of the way game theory can influence decision-making. It is the purpose of this paper to give a simplified explanation of what game theory is, and how it can be applied in its pure form to various military situations. We will then discuss the implications that can be drawn from the theory and show how the line of reasoning it advocates may aid in arriving at sound military decisions.

It should be emphasized at the outset that we are not seeking a magic formula to solve difficult planning situations. Such a result is far in the future, if it can be deduced at all. Neither do we offer hope of simplifying the decision process. If anything, considering an estimate from the game theory point of view requires a higher degree of analysis and logical thought than does the present standard planning doctrine. But it is hoped an understanding of what game theory is and the type of reasoning behind it will aid the Commander in marshaling his own abilities to the maximum when faced with a difficult planning situation.

PART I

BASIC GAME THEORY

CHAPTER I - INTRODUCING GAME THEORY

It is no accident that von Neumann and Morgenstern titled their book *Theory of Games and Economic Behavior*. Economists have long been interested in creating a mathematical model to predict the interactions of buyers and sellers in the market place. Early economists tried to extend the actions of a single person in the market to include the desires and results of all. It should be obvious that this so-called "Robinson Crusoe" economy cannot be projected to predict the actions of numbers of people. Crusoe can produce the greatest good for the greatest number — himself. But when a multitude of people try to maximize their desires, their interaction as they plot and scheme to do this makes it certain that many will have to compromise on "less than the best." As this has tremendous implications to the overall national economy, interest in the problem is more than academic.

To use an analogy that may be closer to the military situation, everyone is familiar with diagrams of football plays. They plot graphically how every member of the team has an assignment to clear the way for the ball carrier. If everyone does his job, the solid line representing the ball carrier proceeds up the diagram until it runs out the top of the page; presumably, he crosses the goal line standing up. In an actual game, the situation seems to be different. Occasional touchdown plays do occur. But most coaches are satisfied if they can grind out a few yards at a time. In fact, they know from experience that the play which looks so good on the blackboard will not, on the average, realize the maximum gain when subjected to the counteractions of the opposing team. Is it possible to deduce the expected return? It is to this question that game theory addresses itself.

It is important to note at this point the difference in philosophy between game theory and the more optimistic football

coach. The theory recognizes from the start that it is a rare thing to achieve one's maximum desires in opposition to an opponent with conflicting interests. It addresses itself to deducing the best return one can reasonably expect over the long run. And it also shows that this return is the one to be sought in a nonrepetitive situation as well. It has very definite things to say when no plan of action promises a satisfactory result. The football coach is less straightforward. There is reason to believe that he must be well aware of the fact that his plays will not always produce the results they are designed to do. Yet, what coach would admit it — would come out and say, "This play might be good for a yard, but I doubt it?" Of course his excuse is that he must keep up morale among the players. In its place this is a very good reason. But if this line of thought is carried over into the planning process itself it may have serious results.

Interest in reasonable expectations is not new. Huygens, the great Dutch astronomer and mathematician, while writing on the theory of games of chance, realized he was skirting the edges of something bigger. In 1657 he wrote, ". . . I believe that in considering these things more closely the reader will soon see that it is not a question only of simple games but that the foundation is being laid for interesting and deep speculations."[1] Von Neumann made one of his first contributions to the theory by writing on poker in 1928. It is probably for this reason that he continued his researches in solving the economic problem by working on "Games of Strategy," of which poker is the prime example. Hence, the use of the term "Game Theory" for a process that can be applied to the bloodiest battle.

Now, just what is the Theory of Games? Essentially, it is a mathematical demonstration that if opposing interests act rationally to achieve desired ends that can be set forth validly in a numerical scale of expected returns, returns that vary according to the success of various plans, the appropriate strategy for each

1 Quoted by J. D. Williams in *The Compleat Strategyst*, p. vi.

side can be deduced mathematically. It says no more than this. As will be seen, the limiting words and phrases of this definition will return to plague us. But to illustrate what the pure theory is, let us turn to some examples in which it does give an answer.

CHAPTER II - MATCHED STRATEGIES

Before going into Game Theory, it is necessary to have in mind the definition of some terms used in discussing it. Other definitions will be introduced later on.

GAME. The word "game" has several meanings in ordinary usage. For our purpose a game is the set of rules that define what can and cannot be done, the size of the bets or penalties, and payoff methods. These rules must be complete, must not change during the play of the game, and must be known to all contestants.

PLAY OF THE GAME. A play of the game is one complete run-through of the game, including the paying off of bets and penalties at the end of play.

ZERO-SUM GAME. A zero-sum game is one in which the gains of one side balance the losses of the other; that is, no outside influence takes a cut of the bets. Poker in which no percentage is taken out of the pot to pay for the beer is an example of a zero-sum game. If a percentage is taken out, it becomes (not very imaginatively) a non-zero-sum game. As can be readily appreciated, the mathematical analysis of the two types of game is quite different

STRATEGY. A strategy is a plan of action that is complete and ready to use before the commencement of the game. It takes into account the rules of the game and all intelligence available about the enemy. The great value of game theory to the military is that it analyzes situations of "incomplete intelligence." There is hardly a military plan that does not fit this description.

PERSON. A person is one of the opposing interests. Bridge, for instance, is a two-person game; north and south are out to beat east and west. Poker can be considered a two-person game by analyzing it as you against all the other players. War,

in spite of the millions of persons involved, is a two-person game. A fighter versus a bomber is a two-person game. In fact, most conflict situations can be resolved into two-person games, and a large part of game theory treats of this field. All of the examples used in Part I are two-person, zero-sum games.

Now to our first example.[2] A man and his wife are planning a camping trip. For reasons that will appear later, the man's name is Bill. His wife's name is Rhoda. Bill likes mountains, the higher the better. On the other hand, Rhoda is allergic to heights. She is perfectly willing to go camping in the mountains, but wants the camp set up at as low an altitude as possible. It so happens that the area into which they are going is covered with a network of Forest Service fire roads, four running north and south and four running east and west. After some argument, Bill and Rhoda decide to compromise. They agree that Bill will select one of the roads running east and west. Rhoda will select one of the roads running north and south. Where the intersection is will be the camp. Of course it will not do for either of them to lose face at this game, and it is a game by our definition. So they go into deep thought for a few minutes.

Take, first, Bill's problem. Let us list the altitude of all the road intersections in a properly oriented table. Now, Bill

Bill's Roads

1	7	2	5	1
2	2	2	3	4
3	5	3	4	4
4	3	2	1	6

Altitude in thousands of feet at the sixteen (16) road intercections.

wants to go as high as possible and he is led to the delights of Road 1, where the highest peak of all beckons. However, he

2 The matrices used in Part I are taken from *The Compleat Strategyst*, by J. D. Williams, but the approach used in describing them has been changed to match the purpose of this paper.

immediately realizes that this is dream stuff. He does not dare to select a plan that might realize the maximum but would lead to disaster if Rhoda is skillful in her choice. He is led to look at all the roads, with particular attention to their low points. A little consideration shows him that Road 3 has a minimum altitude of three thousand feet. If he chooses this road the worst he can do is to get a three-thousand-foot campsite, while if Rhoda is careless he can do better — even up to five thousand feet.

As Bill feared, Rhoda is just as smart about these things as he is. She knows better than to moon over the table of her

Rhoda's Roads

	1	2	3	4
	7	2	5	1
	2	2	3	4
	5	3	4	4
	3	2	1	6

Altitude of road intersections in thousands of feet

road altitudes — thinking how nice it would be to camp on Road 3 or Road 4 at the lowest points. She is impelled to look at her roads for their peaks, and her inspection leads her to select Road 2 — with a maximum altitude of three thousand feet. If she chooses this road, the highest the camp can be is three thousand feet — and, if Bill is careless, it can be lower.

Now, note that something of a coincidence has occurred. Bill has a *strategy*, Bill Road 3, or Bill 3, that guarantees him a minimum altitude of three thousand feet or more. Rhoda has a strategy, Rhoda 2, that guarantees her a maximum altitude of three thousand feet or less. If either of the opponents is careless, the other can do better. But, *under no circumstances can they do worse.* In fact, either of them can announce their strategy to the other and there is no way for the opponent to take advantage of this intelligence.

This coincidence of guaranteed maximum and minimum payoffs being equal is called a *saddlepoint* in game theory. If a saddlepoint is present, both persons should follow the strategy indicated. Their strategies are said to be *matched.* If either departs from the indicated strategy, he will suffer unnecessary loss. If both depart from it, the situation is fluid — but one of them is bound to get hurt.

Having gone this far, let us turn the example into a *game theory matrix,* for that is exactly what it is.

		RED				
		1	2	3	4	Row minimum
BLUE	1	7	2	5	1	1
	2	2	2	3	4	2
	3	5	3	4	4	3*
	4	3	2	1	6	1
Column maximum		7	3*	5	6	

This is the way game theory problems are written. Let us agree for the time being that the payoff for each strategy interaction is correct. The derivation of this value is discussed in Chapter 5. Bill becomes Blue, the maximizing player; that is, Blue is seeking to make the greatest possible gains. Rhoda becomes Red, the minimizing player, seeking to keep the payoff as low as possible. From now on, we will consider problems from the viewpoint of Blue. As far as Red is concerned, the result will be the same if he considers himself the minimizing player or constructs a new matrix with Red in the maximizing position.

To the right of the matrix, we put the row minimums for Blue to inspect. Blue is seeking the maximum of the minimums, or *maximin.* It is indicated with an asterisk after inspecting the

figures. Red is seeking the minimum of the maximums, or *minimax*. Below the matrix, we put the column maximums for Red to inspect. The smallest figure is indicated by an asterisk. It is the minimax. If the maximin and minimax are the same value, a saddlepoint exists and the strategies are said to be *matched*. We have already seen what will happen if either contestant does not follow the matched strategy.

Consider this matrix now as a game that is played over and over with both persons simultaneously naming their strategy. The figure at the intersection is to be paid in dollars to Blue, for it is another convention of game theory that positive numbers represent payments to Blue. Then, in playing this game, Red would always pay Blue something. And it would not take long, even playing randomly for fun, for Red to realize that his Strategy 2 is the only one to use to minimize losses; or, for Blue to realize in this case that his Strategy 3 brings the best return, three dollars. To make the game fair, Red should demand a side payment from Blue of three dollars before every play of the game. This, then, is known as the *value of the game*, a concept that will be useful later on. As described, this would be a very dull game. But, Game Theory says nothing on such a point. Neither does it require that a strategy be sensible, providing it is complete and abides by the rules. It must, however, be rational by the original definition of Game Theory. For instance, a military strategy might provide that you run like the devil whenever you sighted the enemy. This is perfectly valid from the Game Theory point of view, however reprehensible it might seem to your superiors. In other words, judgment of the suitability of a strategy still has to be supplied by the Commander — Game Theory will not do it for him.

Having come this far, what have we gained? As far as the example is concerned, it might be argued that any sensible person could come to the same conclusion without knowing anything about Game Theory. Without going into a full analysis, it appears

that this is not so. Blue should certainly not use Blue 2, and Red should not use Red 1. This is taken care of in Game Theory, as a matter of fact, by the concept of *dominance*, a factor that will be discussed more fully later. After this, there does not appear to be any further elimination that would be apparent without using the concept of minimax and maximin.

The point is that the solution of this problem has been rigorously proven as a mathematical theorem that applies under any conditions, under any set of rules, using any values. This is von Neumann's achievement, and is the departure point for "interesting and deep speculations" that Huygens lacked in his day.3

3 Lest the reader be deceived by the apparent simplicity of the examples, it is well to remember rigorous proof that the rules of Game Theory problem-working give the right answer — and only the right answer — required the genius of the foremost mathematician of the country. The late Dr. John von Neumann himself said that he had to use mathematics "far beyond calculus."

CHAPTER III - MIXED STRATEGIES

Before going further, it is necessary to become familiar with more concepts of Game Theory. Von Neumann describes two variations of the two-person game such as was used for the first example. In one, Blue makes his choice of strategy before Red does and announces it to Red. This is called the *minorant game* of Blue; that is, he is at a disadvantage. The other subgame is when Red makes his choice in advance of Blue and announces it to Blue. This is the *majorant game* for Blue; that is, he had the advantage.

Now it can be shown[4] that the doctrine of arriving at a decision by estimating enemy capabilities is the same as the solution of the minorant game; that is, the maximin. Similarly, it can be shown that a decision arrived at by estimating the enemy's intentions is the same as the solution of the majorant game; that is, the minimax. Further, the maximin may be equal to, but cannot be greater than, the minimax. To make deductions from these facts, we will have to go still further into Game Theory.

It has already been noted in the first example that a "saddlepoint" was present; that is, there was one strategy which each opponent should follow or suffer unnecessary loss. This is a special case of the general theory. In a four by four matrix, such as the example, even filling the squares with random numbers would produce a saddlepoint only about ten per cent of the time. What, then, is the situation when there is no saddlepoint?

Consider as an example the following two-person, two by two game; that is, each person has two strategies. Again, please accept that the payoffs shown are correct under the circumstances.

4 The reasoning behind the statements in this paragraph is given in Appendix A.

		RED		
		1	2	
BLUE	1	3	6	3
	2	5	4	4*
Column minimums		5*	6	Row minimums

The maximin is 4, the minimax is 5; hence no saddlepoint. How, then, to choose a strategy?

Here, we enter the most controversial part of applying Game Theory to military situations: that of *mixed strategies.* And it is here that the difficulty of applying the theory to obtain exact answers to military problems that are not capable of being expressed mathematically becomes most evident. Nevertheless, some useful conclusions may be drawn.

Consider the example to be a game that is played over and over. Look at Blue's situation. If he chooses Strategy 1, he may gain three or he may gain six. But if he sticks to Strategy 1, it would not take Red long to realize it and limit his gain to three by playing Red 1. If he plays Blue 2, he may get five or he may get four, but if he sticks to this it will not take long for Red to limit him to four. He can, of course, play the minorant game: choose Strategy 2 and be assured of a return of four. Can he do better? Certainly he should be able to, as the average of all the possible payoffs is 4½. He might gain this if he is lucky. But can he gain it with certainty? The answer is that he can, over the long run. To do this, he must determine a grand strategy, or mixed strategy that tells him when to use either of his two pure strategies.

The way it is done is this. Recall that in the first example with a saddlepoint it made no difference if either of the opponents told the other what he was going to do. In other words, intelli-

gence was not a factor. In our present case, however, an intelligence service could pay off handsomely if it could tell Red just which strategy Blue was going to use at any particular time. How can Blue insure that Red will not gain this information by any means, including deducing a pattern of operation from previous plays of the game? There is only one sure means of Blue doing this. He should choose a chance device so that the strategy is selected wholly by chance in the correct proportion. If he does this properly, he is assured *in the long run* of averaging a payoff of 4½. Neither contestant knows which strategy Blue will use next. In fact, Blue has restored the game to the condition that intelligence collection by Red cannot hurt him. Although Blue cannot tell Red which strategy he will use on any particular play, he can tell Red his grand or mixed strategy, and Red cannot profit by this information.

The rules for computing the proper odds for use of each strategy by both players are quite simple for games of this size.[5] In the example, Blue should favor Strategy 2 three times out of four; Red should play both strategies randomly, but in even odds. If Red does not counter Blue's mixed strategy of playing his pure strategies at odds of 1:3 by playing Red's strategies at odds of 1:1, it will cost Red more than 4½ points per game on the average. So if Red is careless, Blue may do better than a payoff of 4½ — but under no circumstances can he do worse *over the long run.*

Recall that Blue can assure himself of a payoff of 4 by playing the minorant game, thereby assuring himself of the maximin. By playing mixed strategy, he assures himself of a payoff of 4½, a clear gain of one-half point *with no increase in risk.* Recall, also, that the minorant game is the equivalent of a decision based on enemy capabilities. We can deduce, then, that a doctrine of decision based on enemy capabilities is essentially conservative and does not gain the maximum possible success. A mixed strategy

5 The rules for simple games are given in Appendix B.

will always do better by some factor between the maximin and minimax, provided, again, that the play of the game is repeated often enough to bring the laws of chance into play statistically.

This last statement is the stumbling block, of course. For many, if not most, military situations are of the non-repetitive type. The circumstances of the next action do not reproduce exactly those of the prior one. And for Game Theory to give an exact answer, the game *must* be the same on each repetition. Admittedly, this is one of the greatest barriers to extending Game Theory into the broad fields of military decision in general terms. However, we should note two things. First, that the concept of mixed strategies can be used as a general guide to the Commander's thoughts in reaching his decision. And, second, there are situations in which mixed strategies will work on a purely mathematical basis. As a working tool, it is finding increased application in tactical studies and weapons system evaluation. Let us consider an example.

Suppose that Blue is flying his bombers in pairs. One bomber carries the bomb, the other carries radar jamming equipment, antimissile missiles, or other equipment. The bomber in the lead position obtains more defense from the guns of the follower than the follower does from the guns of the leader. Blue is only interested in the survival of the bomber; as usual, Tail-End Charlie is strictly expendable. Suppose that weapons system evaluation has shown that in an attack by a single fighter the lead plane has an eighty per cent chance of survival if attacked, while the following plane has a sixty per cent chance if attacked. If a plane is not attacked, its survival chances are, of course, one hundred per cent. Just offhand, a Commander might decide to settle for the eighty per cent chance of survival in the lead position. An estimate of the situation in the standard form would indicate that he should do so. But, before he does this it might be well to run through a Game Theory analysis of the situation.

RED

		attack follower	attack leader	BLUE odds
		1	2	
BLUE	bomber 1 follow	60	100	20 1 or or 1:2
	bomber 2 lead	100	80	40 2
RED odds		20	40	
		or		
		1	2	
		or		
		1:2		

Value of game $\frac{1 \times 60 + 2 \times 100}{3} = 86\ 2/3\%$ (8% more than 80%)

A mixed strategy in the form of a 2:1 preference for the bomber in the lead position has increased the average survival chance to 86 2/3%, a gain of about eight per cent over the chances if the bomber stays in the lead and the enemy finds it out. Against this strategy, Red's best strategy is a 2:1 preference for attacking the leader. If Red does not do this, the gain to Blue will be higher. Clearly, then, the bomber force commander should position his bomb carriers by rolling a die or using a table of random numbers. With the die, if a 1 or 2 comes up, the bomber should follow; if 3, 4, 5, or 6 comes up, the bomber should lead. This gives the required 1:2 odds.

Now you may well have a feeling that leaving the choice of his tactics to a chance device shows irresponsibility on the part of the Commander; that is, he is abdicating his responsibility to make military decisions. But, clearly, this is not so. All

of the cogent reasoning that the Commander wishes to put into the decision is in it. The weighing of probabilities and the relative weight to be given each course of action is necessary to using Game Theory on the problem. It requires a more precise evaluation and a higher degree of logical thought than does deriving the decision by considering enemy capabilities. Deception is as old as the art of war. Changes in tactics to throw the enemy off balance often pay off. But, if successive decisions of the Commander reveal a pattern, the enemy may well take advantage of this intelligence. The random device is deliberately chosen by the Commander to prevent this happening, and only for this reason.

Other situations where these principles could be applied should readily come to mind. The contest between submarines and antisubmarine forces are an example; or, the stationing of carriers in a fast carrier attack force under air or sub-surface attack.

Having come this far, a summing up of the conclusions already drawn may be useful.

We have seen that the old argument between basing estimates on enemy capabilities and enemy intentions has a direct counterpart in the theory of games in the minorant and majorant games. This correspondence between game theory and our planning process is most interesting. We will have more to say about it later on.

We have seen the rather obvious fact that if two contestants have matching strategies — that is, there is a saddlepoint in the matrix — both must follow the indicated strategy or suffer the consequences.

In the field of mixed strategy, we have seen that in the repetitive situation the use of a mixed strategy will, in the long run, give a bigger payoff than the use of a single strategy. Rules

for correct proportionment of the use of each strategy are available. The theory of games does have application now in the fields of tactics and weapons system evaluation, and this use should be understood.

But what we have done thus far must have raised many questions. Where, for instance, do these numerical expressions of anticipated gains from strategies come from? What happens if the two opposing Commanders do not use similar scales of military worth? What about games that are played only once, like most military situations? How can the idea of mixed strategies be used in that case? We have seen how useful intelligence can be in the mixed strategy situation. Can we derive from the theory a useful scale to judge the effectiveness of intelligence and the effort to put into learning the enemy's plans or concealing one's own?

All of these questions, and more, will be tackled in the next part. But in doing so we will have to, for the most part, depart from strict application of the theory that we have followed up to now, and draw inferences from the basic work of von Neumann that go far beyond what he had in mind in 1944.

PART II

IMPLICATIONS

CHAPTER IV — THE ESTIMATE OF THE SITUATION AND GAME THEORY

Let us consider the Estimate of the Situation form as laid down in *Joint Action Armed Forces.* The first part of it comprises a statement of the Commander's Mission. The second part contains the intelligence data on own and enemy forces, terrain, weather, and so on. Together with standard doctrine, the work up to now may be said to compare to the Rules of the Game in Game Theory. The next item in the Estimate is to "note all the possible courses of action within the capabilities of the enemy which can affect the accomplishment of your mission." After this, "note all practicable courses of action open to you which if successful will accomplish your mission." This would correspond to a list of the strategies available to both sides. In game theory form, it is done by arranging the strategies on a blank matrix form — own strategies on the left or Blue side, enemy strategies at the top or Red side. *No values would yet be placed in the squares of the matrix.*

The next step in the Estimate of the Situation is "Analysis of Opposing Courses of Action." In the *Naval Operational Planning Manual,* it is recommended that the Commander write the opposing courses in two columns and test each of his own courses of action against each of the enemy's. In each cross-comparison he is admonished to visualize the interaction, estimate probable losses, and conclude whether the enemy can effectively oppose the proposed course of action.

Even if the Commander uses the suggested procedure, it appears that comparing the courses of action and enemy capabilities in matrix form gives a clearer picture of the situation than the recommended two columns. The point-by-point compari-

son will usually require a good deal more text than can conveniently be placed in the matrix. But, as a final summary and visual aid, displaying the interaction of several strategies in matrix form is superior to the column method. Certainly the extra work to make it out is negligible. And for injecting the Game Theory point of view, it is essential — as will appear.

The Manual enjoins the Commander to consider all capabilities of the enemy in order to eliminate the danger of deception by one that is overlooked. It then issues a warning that listing enemy capabilities is not for the purpose of deciding which one the enemy will actually employ: "To base a plan solely on what we think the enemy is going to do is extremely dangerous." From the Game Theory point of view, this is a clear recommendation for the Commander to play the minorant game.

Later on, however, the Manual notes that the Commanler may well consider special knowledge of the enemy in order to determine his intentions: "Such knowledge may reward the Commander with outstanding success." From the Game Theory point of view, this is a recommendation of the majorant game, provided the Commander actually has deduced the course his enemy will follow.

That this contradiction exists is well known in military circles. It is not the purpose of this paper to take sides in the argument. But it can be pointed out that a Game Theory approach can well set more realistic limits to the gains to be won than the "extremely dangerous," if the Commander does not follow the minorant game, to the "possible outstanding success" of an accurate use of the majorant game.

It appears to be unqualifiedly correct that the doctrine of arriving at a decision by consideration of enemy capabilities is the equilavent of the minorant game. However, the correspondence of an estimate of the enemy intentions and the majorant game is not as clear-cut. The definition of the majorant game is: "Red

makes his decision first, and announces it to Blue." If the Commander is estimating what Red will do, it becomes a majorant game only if he estimates correctly and Red actually does follow the capability selected. Furthermore, if Red himself follows a doctrine of basing his action on an estimate of Blue capabilities, his decision will be from his point of view the minorant game, or minimax, in a matrix from Blue's point of view. In this case the difference in payoff to Blue in a mixed strategy situation played once in regard to the two methods of estimating enemy action is the difference between the maximin for capabilities and the minimax for intentions. Ordinarily, these limits would be much less extreme than the "extremely dangerous" or the "outstanding success" of the manual.

On the other hand if Red does not "act rationally" — which from the Game Theory point of view means using a minimax or maximin strategy, or a combination between the two — and the Commander does not correctly estimate the enemy intentions, he may well find himself in a situation that is "extremely dangerous" — provided, that is, there is such a result in the matrix.

Thus, by using the Game Theory point of view the Commander is provided with a more accurate aid to exercising his judgment than the remarks in the Manual. For instance: suppose the difference in results to be obtained by estimating enemy capabilities on the one hand and enemy intentions on the other if the enemy makes a "rational decision" is small, but a strategy selected on the basis of enemy intentions shows a possibility of a very unfavorable result if the enemy does not, in fact, use the intention estimated. The Commander then would probably deem it unwise to base his estimate on enemy intentions. The reverse of this situation might make an estimate based on intentions more attractive.

Opposed to the discussion above is the fact that an estimate based on enemy capabilities protects against "irrational" acts by the enemy. Any failure by the enemy to follow his best capability

may result in a larger return to Blue. This feature does seem attractive, and will be discussed further in Chapter VII. But, if the enemy deduces that the estimates are based solely on capabilities, his course of action becomes clear. That this point is more than academic can be seen from the following quotations:

(By General Westphal of the Wehrmacht):

"Their [the Allies] desire to undergo as little risk as possible prevented them from seizing their chances of bringing an early decision."[6]

(By Field Marshall Kesselring):

"I believe this development [of new tactics at Anzio] was due to a cardinal error of our German Propaganda, which could not do enough to taunt the enemy for their lack of initiative, thereby goading them into a gradual change of operational principles. The method of cautious and calculated advance according to plan with limited objectives gave place to an inspirational strategy which was perfected through the months remaining till the end of the war."[7]

Implicit in the discussions of this chapter has been an assumption that a value scale for the interactions of strategies can be placed in the matrix to provide the guidance needed. It is to this problem that the next chapter is addressed.

6 General Siegfried Westphal. *The German Army in the West.* p. 167.

7 Field Mashal Albert Kesselring. *A Soldier's Record,* p. 238.

CHAPTER V — THE VALUE SCALE OF MILITARY WORTH

In our opening examples of how Game Theory operates, several matrices were used in a form that presented the strategies' worth in numerical terms. In the first example, about the altitudes of various road intersections, there was no doubt what the values should be. In the third example, about bombers in formation, the values were derived from separate work. Presumably, the figures on vulnerability were the best available from tests. It is important for the Commander to keep his eye on whether this is actually so. Are the figures on the same type of aircraft and armament he is using? Are the weather conditions the same? Are the tactics the same? Plainly, there is a field here for the exercise of the Commander's judgment. He, or his staff, should not be too impressed with the data available to him unless it has passed every test for applicability.[8] Only after the value has passed this test is it suitable for inclusion in a matrix for determining strategy.

In the second example of the first part, we used four arbitrary strategies — values 3, 4, 5, 6. Assuming this was a military situation, where would one find these values to represent the military worth of various courses of action?

The plain truth is, there is no such scale of military worth. The most that can be gotten out of manuals on military planning is the instruction to rank enemy capabilities in their order of probability, and own courses of action in order of desirability. It is the lack of such a scale that prevents the use of Game Theory as a formula for calculating the proper decision. In view of all the imponderables in military situations, the development of such a scale would be most difficult — particularly in view of the range of decision situations with which military commanders are faced. It would appear, however, that useful work can be done on the

8 Colonel Haywood, U. S. A. F., in his thesis, *Military Doctrine of Decision*, and the von Neumann *Theory of Games*, p. 55, gives an example: a bomber formation analysis on mathematical basis which was found *not* applicable to actual service.

lower, or tactical, end of the scale, and extended further as experience with the subject grows.

If Game Theory points up the necessity for a scale of military worth, it also points up the fact that in making a decision the Commander actually does express a preference for various outcomes. If he has three courses of action — A, B, and C — and prefers A, he has decided that he values A more highly than B or C, or any combination of A, B, and C. Such relationships are the first step in deducing a value scale.[9]

That a value scale is desirable may be one of the reasons for the development of such organizations as the Weapons System Evaluation Group, though its charter does not express the idea in such a form. In fact, it can be seen that a value scale is really required for logical usage of current doctrines of decision quite aside from any questions of Game Theory analysis. Game Theory only points up the fact that such a development has been needed right along.

However, it is not necessary to have a scale of numerical values for opposing strategies to use the aid of Game Theory in arriving at a decision. As we have said, in considering his own courses of action the Commander must end up with a preference scale of some kind for them. This preference may be expressed in words or phrases, or may simply be the position of the courses on a list. In either event, the preference ordering can be used in checking the comparison against the matrix form. As an example, consider this student estimate for a Naval War College exercise in which air, sea, and amphibious forces were available to control an area. It has been suitably paraphrased to remove its security classification.

9 Von Neumann and Morgenstern, *op. cit.*, pp. 16-20, have considerable discussion of the development of a numerical scale of utility from preferences expressed. They point out that the problem has been solved in other cases where it did not appear possible to do so.

		RED	
		Deny Blue entry into the area by offensive air, sub, and mine warfare. 1	Destroy Blue forces in ground action after Blue landing. 2
BLUE	Destroy Red forces which threaten control of the area by air, sea, and amphibious assault 1	Stands up well.	Stands up reasonably well.
	Destroy Red forces which control area by air attack 2	Does not give positive control	Will not control.

The phrases used in the matrix boxes are extracted from the discussion of each comparison in the estimate. Blue selected Strategy 1, and properly so. It is the only way to accomplish his mission, and it can succeed against either of the enemy capabilities. It is also the solution to the minorant game of von Neumann, the maximin is "stands up reasonably well." Further inspection of the matrix will show that the maximin is also the minimax, and Red's best strategy is 2. A saddlepoint is present, and the strategies are matched.

But, recall that we are not attempting to deduce a formula for solving the decision situation. The matrix is only an aid to the Commander in ensuring the best possible decision. Let us inspect it a bit more.

Blue 1 clashes directly with the sea and air forces in Red 1. The favorable result is predicated on Blue feeling his forces are capable of doing the job. The somewhat less favorable result for Blue 1 against Red 2 is based on the difficulty of countering Red ground reinforcement by air attack prior to the landing. Suppose Red thought his Strategy 1 could hold off Blue — would he not use this instead of Red 2? Yet, the Blue estimate shows Red 2 as Red's best strategy. Since there appears to be no reason why Red cannot implement both of his strategies, should not there be a Red 3 that does this? It would appear that the estimate is somewhat incomplete, and consideration should be given to a third course for Red, combining Red 1 and 2.

The significance of the last paragraph is this. The idea that a third capability for Red should be incorporated came from an inspection of the matrix, and not study of the estimate's text. All of the information was in the estimate, but it was easier to spot this discrepancy while "playing" with the matrix and varying the relative values given to the interactions.[10]

An analysis of five other strategic war game estimates shows that three of them chose courses of action that did not correspond to the strategy indicated by applying Game Theory to the matrix with even the most casual scale of values. There may be sound reasons why this was done. Again, we are not advocating solution by formula. But, at the minimum, such a result on the matrix should make the Commander pause and consider; the text of his estimate should reflect the reasons for such a preference. It does not appear this was done in these cases.

To sum up, construction of a matrix to represent the interaction of opposing strategies may lead a Commander to a clearer insight into the problem with which he is faced. Its use for such a purpose is recommended.

10 It is interesting to note that in the play of this war game Red actually used Red 1 instead of the proposed Red 3. But he did this because his own estimate gave Blue a greater capability for landing at widely separated points than Blue thought he possessed. Hence, Red held his troops back for use when the landing point became clear. From the Blue point of view, this was an "irrational" act by Red.

CHAPTER VI — DOMINANCE

In considering enemy capabilities and own courses of action, a detailed analysis of each — coupled with a comparison of their interaction — can lead to a great deal of unnecessary work when the Commander is sure he will not use some of the suggested courses of action and becomes convinced that the enemy will not use some of his possible capabilities. Game Theory provides an accurate method of eliminating such strategies from the matrix by the concept called *dominance.*

From the Blue point of view, dominance exists if the elements of any row are equal to or superior to the corresponding elements of any other row. If this is the case, the dominated row can be eliminated from the matrix. Such a strategy can only offer equal or inferior results compared to the strategy row that is dominant. Similarly, Blue can estimate that, if Red acts rationally, Red will not use any column in which the values are equal to or greater than those of another column.

For example, consider the first matrix presented — the selection of a campsite.

		Rhoda			
		1	2	3	4
Bill	1	7	2	5	1
	2	2	2	3	4
	3	5	3	4	4
	4	3	2	1	6

Bill 3 is dominant over Bill 2; consequently, there is no reason for Bill to consider Bill 2 further. In Rhoda's case, every element of Rhoda 1 is equal or superior to the corresponding box in Rhoda 2. Consequently (as Rhoda is the minimizing player),

she would certainly not select column 1, whatever else her decision might be based on. The reason for writing "Bill is led to the delights of Road 1, but he immediately realizes that this is dream stuff" is, in fact, dominance.

Having eliminated Rhoda 1 and Bill 2, the game reduces to:

		Rhoda 2	Rhoda 3	Rhoda 4
Bill	1	2	5	1
	3	3	4	4
	4	2	1	6

None of the rows or columns are now dominant, and attention can be focused on solving this smaller game.

Let us take a hypothetical estimate of the situation in which the Commander has made up a matrix to aid him in visualizing the interaction of strategies. He uses as a value scale words descriptive of the result from his point of view.[11]

		RED 1	RED 2	RED 3	RED 4	RED 5
Blue	1	Failure	Excellent	Excellent	Superior	Excellent
	2	Good	Fair	Fair	Fair	Excellent
	3	Excellent	Defeat	Superior	Superior	Fair
	4	Good	Fair	Failure	Failure	Superior

None of Blue's strategies are dominant. But Red 5 is dominant over Red 2. Hence, Red can be expected not to use Red 5. It should be emphasized that Blue does not *know* Red will not use Red 5. But if Red did so, it would be an irrational act from

11 The matrix is taken from Colonel Haywood's thesis *op cit.*

Game Theory viewpoint. In view of the fact that strategists are constantly being admonished not to underestimate their enemy, the Commander may well feel justified in concluding that Red will not use Red 5. When this column is eliminated, it is found that now Blue 2 dominates Blue 4. Blue 4 can then be eliminated. When this is done, Red 4 dominates Red 3 and can be eliminated. And Red 3, in turn, dominates Red 2 and can be eliminated. The matrix then becomes:

		RED	
		1	2
	1	Failure	Excellent
Blue	2	Good	Fair
	3	Excellent	Defeat

It is, of course, much too easy and arbitrary to cut down a list of courses of action or capabilities by such a mechanical method. Many other things should be considered: such as the effect of an irrational act by the enemy, possible combinations of strategy, the precision of intelligence. Nevertheless, if the Commander uses the matrix as an aid, dominance — or the lack of it — can be a guide to his decision. Again, as in the selection of a course of action, lack of correspondence between the matrix and the estimate is a clear warning to pause and reconsider.

Incidentally, the reader might find it profitable to look at the reduced matrix above and ponder the implications to be drawn from it in regard to basing his strategy on intentions or capabilities.

CHAPTER VII — IRRATIONAL ACTS ON THE PART OF THE ENEMY

Returning to our original definition of Game Theory, it was described as the selection of a strategy by opponents that make "rational" decisions. From the point of view of von Neumann and Morgenstern, working on economics, a rational decision was one in which a player sought to make the greatest feasible gain over the long run. Anyone that engages in business without such an ambition is driven by forces outside the realm of economics. Game Theory completely falls apart without such an assumption. At least one of the opponents must make rational decisions. In the corresponding military situation, the Commander of Blue undoubtedly considers his estimate of the situation as the height of rationality. So this condition is satisfied — at least until the battle starts! What, then, is the effect of irrational decisions on the part of the enemy?

We have noted previously the minorant game has the advantage that if the enemy does not play his best strategy the gain to Blue will be even further increased. A decision based on estimate of enemy capabilities is the same course of action as the minorant game, except Blue does not announce his decision to Red. It would appear that the theory and reality part company here for this reason: in Game Theory a strategy is a complete plan of action prepared before the commencement of play, and taking into account all intelligence of the enemy and the physical environment, as well as the rules of the game. Nothing unexpected in the way of weather, terrain features, material failures and the like can come up. For, by definition, these have been anticipated in the formulation of the strategy. Furthermore, Red has anticipated all possible strategies of Blue, and has only to pick one to counter the one selected by Blue.

While such a situation might exist in real life, it is more probable that some one of the factors mentioned would be imperfectly known or improperly estimated. We can say, then, as a

practical matter: in the use of a course of action chosen on an estimate of enemy capabilities, an irrational act on the part of the enemy will probably result in benefit to Blue, but it is not as certain as pure theory would have it. It follows that the better and more detailed the estimate, the greater chance that mistakes on the part of the enemy will benefit the Commander.

It might be well to interject at this point the idea that in real life the situation represented by the matrix of strategies is in reality three matrices: the matrix as estimated by Blue, the matrix as estimated by Red, and the matrix as it actually works out in play.[12] The closer a Commander's estimate comes to matching the situation in reality, the better he is prepared to play the game. This leads to the same conclusion as the previous paragraph: the better and more detailed the estimate, the greater chance that mistakes on the part of the enemy will benefit the Commander.

In real life, when playing the majorant game, Red does not actually announce his decision to Blue (though it would be well to remember that a leader called Hitler did it with outstanding success — for a while). Blue estimates Red's intentions. If he is right, Blue gains over the result to be obtained by estimating enemy capabilities. But he must be right. At Pearl Harbor, Blue was wrong — with devastating effect. Military historians are now generally agreed that the attack on Pearl Harbor was an "irrational" act on the part of the Japanese. In Normandy, General Bradley was faced with a decision in the Avranches Gap situation.[13] He chose to station his reserves to support the Gap, although he believed the enemy's best strategy was to withdraw. In an analysis of this battle from the Game Theory point of view, Colonel Haywood discusses the strategies available to the Ameri-

12 Footnote 10 of Chapter V notes the effect in a war game of the opposing commanders using different matrices.

13 General Omar Bradley. *A Soldier's Story*, p. 369

can and German Commanders.[14] Von Kluge could either attack the Gap or withdraw. He decided to withdraw. Game Theory analysis supports this conclusion. But, Hitler ordered him to attack the Gap at all costs. The attack failed, his army was encircled, and von Kluge committed suicide. Bradley was well advised not to base his estimate on enemy intentions. Furthermore, when the enemy committed his "irrational" act the payoff to Bradley was greatly increased, as the analysis shows it would be. Failure in this battle actually cost the Germans France.

Although Pearl Harbor is still a subject of much controversy, from the Game Theory point of view it does not appear that basing American dispositions on enemy intentions promised any particular advantage to offset the enemy's gain by doing the unexpected. Hence, the decision could not be recommended. In General Bradley's case, the increase in payoff if the enemy acted "irrationally" was very great if he based his estimate on capabilities as compared to the gain if he based his estimate on intentions, plus the fact that he could be in serious trouble with the Gap cut if he did not estimate enemy intentions correctly.

It appears that Game Theory analysis of the opposing strategies can be useful in such situations by indicating more clearly the limits of advantage and disadvantage if the enemy makes a mistake, acts stupidly, or uses a markedly different matrix than Blue.

14 Colonel O. G. Haywood. *Military Decision and Game Theory. Journal of the Operations Research Society of America*, Volume 2, Number 4, September, 1954.

CHAPTER VIII — VALUE OF INTELLIGENCE

In theory, the limits set by Game Theory analysis of opposing strategies give precise measure to the advantages to be gained by obtaining information about your enemy, or his succeeding in gaining it about you. In practice, the uncertainties of the situation, the "fog of war," difficulties of communication, and the like, will make these measurements less susceptible of calculation. Nevertheless, a Game Theory point of view can again furnish the Commander with guidance which may be useful.

Recall that the minorant game is the equivalent of the enemy, Red, gaining complete information about Blue; while the majorant game is the equivalent of Blue gaining complete information about Red. If both play "rational" strategies — which we, as Blue, certainly expect to and which the enemy will most probably do — the difference in gain in the two situations is the difference between the maximin and the minimax. Even in a matrix made up of descriptive phrases it can be expected that the result will not vary more than the expected difference in return between one phrase and the next as to the actual return of the minimax or maximin.

It follows, then, that if the differences between the minimax and maximin is small, the gain due to intelligence cannot be large. In this case the expenditure of large forces and resources in gaining this intelligence would not be justified. The converse is equally true.

These theoretical limits on the value of intelligence may not be applicable in actual practice, but they could furnish guidelines in doubtful cases. They might also be useful in confronting overzealous subordinates with the necessity of justifying a larger intelligence effort.

It will be seen that the philosophy of the Game Theory approach recommends choosing a strategy on the basis that the

enemy will find it out. In the matched strategy situation there is, in theory, no way for the enemy to take advantage of knowledge of what strategy Blue will employ. In the mixed strategy situation, when repetitive, the use of a mixed strategy on an odd basis — using a chance device to determine the exact pure strategy to use at any one time — restores the game to the same situation; that is, the enemy cannot profit from knowing the mixed strategy. He can, however, profit from knowing the pure strategy that is proposed to be used.

It can be used as a guide, then, that if the Commander is using a mixed strategy, preparatory actions which are essential to all of the strategies to be employed can be undertaken without undue security precautions. This is often the case in large undertakings. For instance, there was no possibility of concealing from the Germans the build-up of American forces in England during the first years of World War II. However, the use of these forces, first in Africa and then in Normandy, was guarded with maximum security.

It should be noted that the gain from intelligence of the enemy is limited to the difference between the maximin and the minimax only if the enemy follows a rational strategy. If he does not — that is, if he is stupid or makes a mistake — a Commander finding it out must be prepared to depart from the strategy indicated by Game Theory analysis in order to obtain maximum advantage of the intelligence. Von Neumann says, "All this may be summed up by saying that while our good strategies are perfect from a defensive point of view, they will (in general) not get the maximum out of the opponents (possible) mistakes."[15]

15 Von Neumann and Morgernstern, op. cit., p. 164.

CHAPTER IX — SUPERIOR AND INFERIOR STRENGTH

In his remarks on poker, von Neumann points out some facts that may be useful in planning. He shows that a player who never bluffs will lose in the long run. Bluffing should be done for two reasons: one, the gain if it is successful; and, second, the gain that is obtained if it is not successful. For, by bluffing and being called, a player gains by introducing uncertainty into his opponent's mind. The bluffer is then in a position to collect when he has a really strong hand. If he never bluffs, a high bet will cause the opponent's to drop, and his gain over the long run will be decreased.

From von Neumann's point of view, intelligence in a game consists mainly of deductions from the opponent's previous plays. Random bluffing will prevent the deduction of a pattern in this manner. A bluff can be one component of a mixed strategy. If, a player never bluffs, he is in effect limited, at the maximum, to the payoff of the minorant game. But in a game in which strategies are not matched, such as poker, the payoff of a mixed strategy will be greater than this by some fraction between the maximin and the minimax. This value is also the *value of the game,* which was previously referred to. In effect, the value of the game is the break-even point at which two equally strong and skillful opponents would arrive in the long run. So if one of such opponents plays the minorant game, he will, on the average, gain less than the value of the game and will eventually be the loser. It can be seen, then, that playing the minorant game — that is, playing capabilities — will eventually lose against an opponent of equal strength but superior strategic sense.

The correspondence between the poker situation — which has been proven to be mathematically correct — and the military situation depends, of course, on the degree of correlation between this game of strategy and the type of situation with which the Commander is faced. As a game of strategy, poker does have

some relation to war — although it is not contended that in the usual situation this correlation will be very close. Nevertheless, it can be seen that the closer a military situation comes to resembling poker, the more surely will the mathematical predictions of von Neumann operate in the long run.

This being so, we can say, as a guide, that a Commander who bases his estimates on capabilities in a situation which resembles that of mixed strategies will probably lose in the long run if an equal-strength opponent plays a mixed strategy. The only way to avoid this is to be stronger than the opponent. By and large, being stronger than the enemy at the point of contact and playing capabilities has been the course followed by the United States in its military history. That it has produced a good record is unquestioned.

It would appear possible, however, that in the future we might not be able to assure this superiority at all times and in all places. Essentially, it has depended on a long and careful build-up of our forces and those of our allies. That this will always be possible is being questioned by many. It is not the purpose here to take sides in this argument. But, from the Game Theory point of view it can be pointed out that an equal strength force can only break even in the long run by playing mixed strategy, and an inferior force can only save itself by playing intentions if such a result is possible at all. Commanders who have always based their estimates on enemy capabilities will be under a distinct mental handicap in these situations. During the first months of the Korean War the United States forces were in a distinctly inferior position. Colonel Haywood describes how at least one of the Commanders met this situation:

> The fame attained by General Michaelis in the first year of the Korean struggle rested to a large extent on his ability to estimate the pattern of thought of opposing North Korean generals. Time and again he left his front manned by a skeleton

> force because he estimated that the Reds would attack from the flank or rear; and he was right. His actions were not based on unconsidered rashness. Rather he recognized that his troops were so outnumbered that he had to deploy strength only to areas where he expected attack. He could not afford the luxury of a conservative decision.[16]

If there is anything to the idea that we may not be as able to assure military superiority in the future as we have in the past, it might be well to give more attention to such situations than is presently found in military manuals. Game Theory can make distinct contributions to the discussion.

16 Colonel O. G. Haywood. *Military Decision and Game Theory*, p. 39.

CHAPTER X — THE NON-ZERO-SUM GAME

It will be recalled that all of the examples given in Part I were zero-sum-games; that is, the gains of one side were balanced by the losses of the other. This same criteria applies to the more general discussions in Part II up to this point. This assumption appears to be valid, or nearly so, for most military situations. However, it is quite possible to have conflict situations in which the zero-sum assumption does not apply. Examples can be found in several fields. If the Commander were told, "Win if you can but under no circumstances lose," his scale of values would have to differ from those of an opponent who did not have this limitation. Determining the gain or loss from military action will also include the relative worth given to various components of the force. The United States, with its traditional regard for human life, would look on the outcome of a battle in a different light than an opponent to whom losses of troops were of slight concern. We have already experienced this in Korea. Forester's novel *The Gun*, gives an extreme example of the relative valuing of materiel over the humans involved — with a satisfactory result to the participants, incidentally, though many of us would be inclined to question it. What, then, is the effect if the players do not use similar scales of worth?

Non-zero-sum games lead into mathematical complexities that are still being worked upon. In general, the solution in simple cases is to consider that there is a third player, called Nature, that supplies the difference in payoff required to balance the books. This is not the same as a three-persons game, for in this type — which we shall not consider at all — it is interesting to note the theory leads to quite positive indication that the only proper course in a game with more than two players is to form coalitions against one player. It then becomes a two-person game again as long as the mutual payments to keep the partners satisfied hold the coalition together. (NATO?) However, when Nature is the third player, forming a coalition with her is not possible.

That this concept of a third player, Nature is usable can be seen from the situation in which two opposing Commanders each decide not to engage, but to decline battle. Presumably, both get satisfaction from this course of action, a payoff. Where does this come from? The concept of Nature provides an answer. In effect, the two opponents have formed a coalition.

It can be seen that a Commander who plays capabilities does not have to worry about the opponent's scale of values. Any deviation from the correct strategy for the opponent as determined by the Commander can only increase the payoff to Blue — provided the estimate is correct and complete. Any deviation from the correct strategy by Red on account of Red using a different scale of values will, from the Blue point of view, be the same as an irrational act.

In the mixed strategy situation the foregoing still applies, though the payoff may not be as great as it could be made by knowing the opposing commander's mind. The practical solution of such a problem is not yet available. But as long as we play a mixed strategy based on our own scale of value, we are assured at least of the expectancy which would result if Red did, in fact, use the same scale. It is only in playing intentions that the enemy's scale of values enters into the solution of the game. Again, there is no formal method of solving this problem. But it should be obvious that a Commander playing intentions must, if he is to be successful, be first of all thoroughly grounded in the manners, morals, and past history of his opponent. Certainly, estimating what an enemy will do, using — even subconsciously — one's own scale of values, will inevitably lead to disaster. It would appear that a good deal of present-day talk on the possible nature of future war falls into this error.

CHAPTER XI — SOME FURTHER THOUGHTS ON MIXED STRATEGIES

We have noted in the first discussion of mixed strategies (Chapter III) that the result is assured only after sufficient repetition to bring statistical probability into play. Also, successive actions in military affairs will, in general, not exactly reproduce the circumstances of the first play of the game. It would appear that this is a stumbling block to using the concept of mixed strategies.

However, it is interesting to note that von Neumann and Morgenstern, in deducing their theories on mixed strategy, solved the problem specifically for games played only once.[17] They show that the course of action in the mixed strategy situation played once should be selected by an odds measured random choice in the same manner as was indicated for repeated plays of the game. In fact, a mathematical purist can well object that the theory is proven for the single play only. It has not been extended to include games played *n* times. Williams, in *The Compleat Strategyst*, devotes considerable attention to this point.[18] He cites as part of his discussion the following situation:

> Consider a non-repeatable game which is terribly important to you, and in which your opponent has excellent human intelligence of all kinds. Also assume that it will be murderous if your opponent *knows* which strategy you will adopt. Your only hope is to select a strategy by a chance device which the enemy's intelligence cannot master — he may be lucky of course but you have to accept some risk. Game theory simply tells you the characteristic your chance device should have.

17 *Op cit.*, pp. 44-45 and 146-148 for discussion of this point.

18 *Op cit.*, pp. 206-207.

> You may also adopt the viewpoint that you will play many one-shot games between the cradle and the grave, not all of them being lethal games, and that the use of mixed strategies will improve your batting average over this set of games.

There are several reasons why a military commander, faced with a mixed strategy picture in his matrix — in a single-play situation would be under pressure to follow the conservative course — play the minorant game on an estimate of enemy capabilities. In the first place, present doctrine favors this course; the training to which he has been subjected leads to this conclusion except in clearly exceptional circumstances. The usual pattern of superiors is to give the subordinate enough forces to accomplish the objective, and then hold him strictly accountable for the results. Defeat can have a shattering effect on a leader's career. Conservatism is thus reinforced. In addition, the American tradition frowns on sacrificing men and materiel to set up a situation of success in the future. We even have trouble justifying such expenditures in training. All of these things reinforce the tendency to conservatism, of proceedings by massing superior forces and grinding out a victory. It has been successful in the past.

It should be evident by now that such a doctrine is not sufficient for situations of equal or inferior strength. And there is grave doubt that it accomplishes the result desired at minimum cost and time, even when the force is superior. How can we change our doctrine to take advantage of the gains of mixed strategy?

Colonel Haywood makes several sound suggestions in his thesis on this matter.[19] In the first place, it is not meant to press the superiority of mixed strategy unduly. The "fog of war" will have some effect in randomizing our (and the enemy's) strategies. He suggests, in lieu of a fully determined mixed strategy, that superiors in control of a number of subordinate units direct in a

19 *Op cit.*, pp. 79 ff.

random fashion that these subordinates base their actions on capabilities for a certain period and intentions for another. The directive should not be stereotyped, but made by a random device. The more weight that is given to intentions, the bolder the strategy. This would lead to defeat in some areas and better-than-average success in others. A subordinate must be judged only on the execution of his strategy, not the results. In the long run, this course should show a more favorable result than following a doctrine of capabilities. At the very least, it would keep the enemy from being able to count on our course of action. Hence, it would force him to a more conservative strategy. It is precisely this method which von Neumann recommends to tame the over-aggressive poker player.

The difficulties of implementing such a doctrine can be seen. Nevertheless, the gains to be found in it are real, and justify Commanders devoting considerable thought to the problem. If this chapter stimulates such thought, it will have served its purpose.

CHAPTER XII — SUMMARY AND CONCLUSIONS

As stated in the Introduction, the purpose of this paper is to give a simplified look at what Game Theory is in the hope that military leaders will become interested enough to pursue the subject further. Game Theory gives a different point of view on the subject of military decision. The fact it is different makes it desirable that Commanders become familiar with it on the chance that it may aid their thinking by injecting a new and fresh insight. This is the most valuable contribution that Game Theory can make at the present time. For, except in a limited range of problems, it is not available for actual solutions of military planning dilemmas. ". . . . the theory of games is spectacular, if that is the word, only in an intellectual sense, and only in that sense can it be appreciated."[20] Yet, who would deny that planning for the world situation in which we find ourselves today places a greater emphasis on rational thinking than on piling up weapons? To such a planner, Game Theory has much to say.

Although this paper is preliminary, there are certain conclusions which appear to be acceptable at the present time.

1. The use of the matrix form for representing the interaction of strategies is superior to that recommended in the *Naval Planning Manual.* It should be used now as the Commander's summary and visual aid in place of the Manual recommendation.

2. Familiarity with the concepts of maximin, minimax, matched strategy, mixed strategy, majorant and minorant games will enable the Commander to use his matrix at a test and check of his estimate. It is not recommended as *the estimate.* Nevertheless, it is believed that Colonel Haywood's maxim holds good: "If the Commander is not prepared to make a matrix of the opposing

20 McDonald, John. *Strategy in Poker, Business and War,* p. 18.

strategies for the situation, he is not prepared to make a decision."[21]

3. If mathematical expressions of the worth of a strategy are available for inclusion in a matrix, the theory will give the proper strategy to follow or indicate the range of choice. Due to the lack of such a scale of values to cover all the facets of the military problem, this solution cannot be used. However, by using a qualitative scale satisfactory to himself, the Commander can gain from the matrix relations indications of the proper strategy subject to the range of uncertainty contained in his scale. These relations can be useful as a check against the body of the estimate. If they do not correspond, he has a clear warning to stop and reconsider.

4. The matrix can provide, subject to the range of uncertainty of the scale of values, a measure of the worth of inteligence effort and the difference in payoff between basing an estimate on enemy capabilities and enemy intentions.

5. Game theory clearly points up the essential conservatism of our present doctrine of basing estimates on enemy capabilities. Unlike such a doctrine, it indicates a course of action if our own forces are equal to or inferior to those of the enemy.

6. Since the scale of values is the crux of the matter, Game Theory indicates in certain circumstances the importance of "Knowing your enemy." It thus reinforces this military maxim.

21 Colonel O. G. Haywood. *Military Decision and Game Theory, p.* 46.

APPENDIX A

CORRELATION OF ESTIMATES BASED ON INTENTIONS AND CAPABILITIES WITH GAME THEORY

The correlation of the majorant and minorant games with the military doctrine of basing decisions on enemy intentions or enemy capabilities was first pointed out, in unclassified form, by Colonel Haywood in his Air War College thesis, *Military Doctrine of Decision and the von Neumann Theory of Games.*[22]

The line of reasoning for capabilities is as follows: it is based on the assumption that there is at least one course of action which promises success. This does not appear unreasonable. The Commander must apply the criteria of suitability, feasibility, and acceptability to his courses of action. If none of them pass these tests — which simply mean, in effect, that he can lick the enemy at acceptable cost — he is enjoined to return to his superior and present his conclusions. The superior may change the mission; or, he may direct that the subordinate carry out the mission as given, being willing to pay the price in view of other considerations. In this case, it becomes suitable, feasible, and acceptable, "by direction." With one course of action available against any enemy capability, it is obvious that it must be the maximin; i.e., the solution to the minorant game. If there is more than one action which will be suitable, etc., the one which has the higher maximum of the row of minimums would be the choice; again, the solution of the minorant game. Thus, a decision based on enemy capabilities will counter the worst he can do to you.

In the case of the estimate based on enemy intentions corresponding to the majorant game, this is true only if the Commander does actually estimate the enemy intention correctly. In this case, it fills the definition of majorant game just as well as if the enemy sent a message saying what he was going to do as the definition calls for.

22 Op. cit., p. 20 ff.

APPENDIX B

THE COMPUTATIONS OF ODDS FOR USE WITH MIXED STRATEGY

The following is taken from the *Compleat Strategyst*, by Williams. This book, by the Head of the Mathematics Department of the Rand Corporation, is a condensation of Game Theory stressing the mathematical approach simplified to the point that no higher mathematics are involved. It is the most understandable source for the average person. Anyone wishing to become reasonably conversant with basic theory would do well to study this book and work all of the sample problems it contains.

Step 1. Look for a saddlepoint. If there is no saddlepoint the best grand strategy is a mixed strategy. If there is a saddlepoint, computing the odds will only lead you to a wrong conclusion.

Step 2. If there is no saddlepoint, compute the proper odds as follows (using the same matrix that illustrated the idea of mixed strategies). Take Red's odds first.

RED

1	2
3	6
5	4

Subtract the numbers in the second row from those in the first, and put the answers in two new boxes.

RED

1	2
-2	2

Then, the oddment (a manufactured term for a single component of an expression of odds; thus, odds 4:5, 4 and 5 individually are *oddments*) for Red 1 is in the Red 2 box; thus,

RED

1	
	2

and the oddment for Red 2 is in the Red 1 box; thus,

RED

	2
-2	

One of these numbers will be negative, always. Disregard the minus sign. The odds then are Red 1: Red 2 = 2:2 or 1:1. Red should mix his strategies using a chance device with even odds, like flipping a coin.

Blue odds are computed similarly, with everything turned 90 degrees.

BLUE

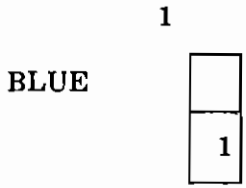
1	3	6
2	5	4

Subtract the second, or right-hand column from the first.

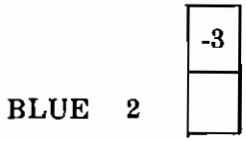
BLUE

1	-3
2	1

Then, the oddment of Blue 1 is:



and the oddment of Blue 2 is:



Blue's odds are Blue 1: Blue 2 = 1:3. It would be easiest to take this from an electronically calculated table of random numbers. (Under no circumstances, manufacture your own — your method of thought will appear in it somewhere). The method of doing this is in the book; it is too long to reproduce here.

Proof that the odds calculated give the right answer can be seen by calculating the *value of the game* for all four possible strategies, or, more simply, one for Blue and one for Red. Thus:

Red plays at odds of 1:1. His average against Blue 1 is:

$$\frac{1 \times 3 + 1 \times 6}{1 + 1} = 4\frac{1}{2}$$

Blue plays at odds of 1:3. His average against Red 1 is:

$$\frac{1 \times 3 + 3 \times 5}{1 + 3} = 4\frac{1}{2}$$

and, similarly for the other two strategies.

BIOGRAPHIC SKETCH

Captain Robert P. Beebe, U. S. N.

Captain Beebe graduated from the United States Naval Academy in 1931 with a BS degree, and also graduated from a postgraduate course at the Line School, Annapolis, in June, 1939.

After a tour of duty in the U. S. S. LEXINGTON in 1932, and after completing flight training in 1933, he served in various carrier-based squadrons and patrol plane squadrons up until April, 1941. Subsequent to that time, he served as Flight Officer at the Naval Air Station, Miami, for a year.

His wartime duty included: Commanding Officer of Bomber Squadron TWELVE and Navigator of the U. S. S. SARATOGA. He served on various staffs after the war, as Executive Officer of the U. S. S. VALLEY FORGE, and as Commanding Officer of the U. S. S. SITKOH BAY.

Captain Beebe was a student at the Naval War College in the Course of Advanced Study in Strategy and Sea Power during Academic Year 1956-1957. At the present time, he is Head of the Strategy and Tactics Department.

RECOMMENDED READING

The evaluation of books listed below include those recommended to resident students of the Naval War College. Officers in the fleet and elsewhere may find them of interest.

The listing herein should not be construed as an endorsement by the Naval War College; they are indicated only on the basis of interesting, timely, and possibly useful reading matter.

Many of these publications may be found in ship and station libraries. Books on the list which are not available from these sources may be obtained from one of the Navy's Auxiliary Library Services Collections. These collections of books available for loan to individual officers are maintained in the Bureau of Naval Personnel; Headquarters ELEVENTH, FOURTEENTH, FIFTEENTH Naval Districts; and Commander Naval Forces, Marianas, Guam. Requests for the loan of these books should be made by the individual to the nearest Auxiliary Library Service Collection (See Article C9604, Bureau of Naval Personnel Manual. 1948).

Title: *American Nationalism.* 228 p.

Author: Kohn, Hans. New York, Macmillian, 1957.

Evaluation: An analysis, by a student of the nationalism of many lands, of our home-grown version. It is not a history of our nationalism, but an essay focused on five problems which the author considers most characteristic: the origins of American nationalism; its relationship to England; its Federal structure; its multi-ethnic character; and, finally, its position within the community of nations. The treatment of each of these problems is lengthy and frequently repetitious. However, the book provides a better understanding of the term "nationalism," and of the influence that nationalism has had on the course of American history.

Title: *Nuclear Weapons and Foreign Policy.* 455 p.

Author: Kissinger, Henry A. New York, Harper, 1957.

Evaluation: The author presents a thorough discussion of foreign policy and national strategy in the nuclear age. It is an attempt to answer the $64 billion question of what to do about nuclear war. Henry A. Kissinger headed a Council of Foreign Relations Study Group who considered this question for eighteen months. The group, numbering thirty-four men, included Thomas K. Finletter, Frank Pace, Jr., Gordon Dean, Hanson Baldwin, and General W. B. Smith. This book, representing Doctor Kissinger's own opinions rather than a group concensus, was written after the study was completed. It is difficult and complex to read, and it ranges in careful detail over the entire spectrum of the strategic problem. The emphasis is on the point that the nuclear age represents a real technological breakthrough, increasing our dangers and vulnerability at the exact time when our world commitments are greatest. The problem of the limited aggression receives careful treatment since it is now apparent that the Soviet Union, while probably no more anxious for an all-out atomic war than we, has not been so hesitant to provoke smaller aggressions. We, who have a tradition for fighting for total victory, are illustrated as being psychologically prepared only for the all-out fight — and, then, only when driven to war by extraordinary provocation. The war for limited objectives is well argued. At the same time, Doctor Kissinger stresses that we must continue to prepare for the all-out attack and the all-out counterattack.

Title: *The Invasion of France and Germany* (History of United States Naval Operations in World War II, Vol. XI). 330 p.

Author: Morison, Samuel Eliot. Boston, Little, Brown, 1957.

Evaluation: A thorough report of the naval aspects of the planning and execution of the invasion of Europe through western and southern France. The book is written with great care, and displays an immense knowledge and pride of United States Naval operations in this campaign. The enormous logistic problems involved, that lead to some strong strains upon the Anglo-American relationships, are given especially thorough and interesting treatment. The pro's and con's of the famous controversy over the invasion of the "soft underbelly" of Europe are also

thoroughly discussed. Except for a few infrequent detailed treatments, this book is a highly enjoyable means for acquainting oneself with the naval aspects of this epic action.

Title: *The Cause of Japan.* 372 p.

Author: Shigenori, Togo. New York, Simon and Shuster, 1956.

Evaluation: Mr. Togo, with two collaborators and translators, presents at the outset a broad history of the emergence of Japan as a modern power, and of her development in the twentieth century as a Great Power through the Russo-Japanese War, the First World War, and traces the rise of Japanese aggression and expansion in detail from about 1935. A career diplomat, he shows himself to have been a moderate, generally opposed to — and by — extremists in the military, and as one who labored tirelessly to bring about an adjustment of Japanese-American relations — especially when they became acute in 1940-41. As Foreign Minister in 1941-42, Togo depicts himself and his government working patiently to bring about agreement of Japan and the United States. The work will afford some ammunition to those "revisionists" who have sought to indict the Roosevelt administration of bellicosity as regards Japan, and negligence or worse at Pearl Harbor. Mr. Togo cites the work of the late Charles A. Beard in this connection. He was ousted as Foreign Minister in 1942, but was recalled in April 1945, when the end was in sight and negotiations were in progress to conclude the war.

Title: *United States Defense Policies Since World War II.* 87 p.

Author: Donnelly, Charles H. Washington, U. S. Govt. Print. Off., 1957.

Evaluation: This document contains a chronological listing of the policies of the United States Government in the field of defense since World War II. It is not an attempt to analyze or appraise the policies, but merely a compilation of the pertinent developments which occurred and the position the United States Government took toward each situation. As stated by the Honorable Melvin Price, Member of the House Committee on Armed Services, "this study is intended to provide a background for the analysis of the more important present-day problems by indicating how the policies of today have evolved from those of yesterday."

Title: *The Hungarian Revolution: A White Book.* 318 p.

Author: Lasky, Melvin J., ed. New York, Praeger, 1957.

Evaluation: Edited by a noted American newspaperman, Melvin J. Lasky, and sponsored by the Congress for Cultural Freedom, this "White Book" presents the story of the uprising in Hungary in October and November 1956, as recorded in documents, dispatches by Hungarian and foreign newspaper correspondents, eye-witness accounts, and radio broadcasts. The material is compiled and edited in such a way that a vivid chronological sequence of events unfolds itself, illustrated by many photographs and illuminated by cartoons and interpretive remarks by Hungarian and foreign observers. It is the most comprehensive and complete collection of material on this dramatic event yet published — more complete than the report of the United Nations Sub-Committee on Hungary. The careful and skillful selection is objective, and makes interesting reading. It is amazing how, from accounts by observers of widely different backgrounds and convictions, a consistent stream of pictures emerges. As an introduction, Professor Hugh Seton-Watson of the University of London provides a masterful, accurate and enlightening thumbnail sketch of Hungarian developments since the First World War, and, particularly, under Russian occupation since 1945. He also suggests certain lessons of the Hungarian Revolution for the future of Communism and Totalitarianism.

PERIODICALS

Title: *The Atomic Ship Shapes Up.*

Author: Winslow, Richard K.

Publication: NEWSWEEK, July 29, 1957, p. 53-56.

Annotation: Summarizes information on how the first atomic merchantman is taking shape, and what it can mean to transportation and commerce of the future.

Title: *Why Russia Likes the Idea of Arms Cuts.*

Author: Hudson, G. F.

Publication: U. S. NEWS & WORLD REPORT, July 19, 1957, p. 98-101.

Annotation: A British authority finds it "extremely difficult to imagine" any arms agreement which would not work to the disadvantage of the West.

Title: *East-Central Europe: Is United States Aid Helping Here?*

Publication: CURRENT HISTORY, July, 1957.

Annotation: The entire issue is devoted to a discussion of the value of American economic assistance and other aids to the Soviet satellite states as a means of separating these nations from their Russian masters.

Title: *From Balance to Deterrence.*

Author: Burns, Arthur Lee.

Publication: WORLD POLITICS, July, 1957, p. 494-529.

Annotation: Using the theory of games as his basis, the author tells how a general theory of international relations is possible, and shows how the effect of alliances and the deterrence force of modern weapons might be calculated in such a system.

Title: *The Future of the Western Alliance.*

Publication: THE ANNALS OF THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE, July, 1957.

Annotation: The entire issue. fifteen articles in all, is devoted to the future of the NATO alliance and Western Europe. Some of the articles are: Neutralism and United States Foreign Policy; The Military Potential of NATO; and Current Russian Designs in Europe and the Middle East.

Title: *U. S. Ideals vs. Nuclear Concepts.*

Author: Donahue, Lieutenant Colonel J. F., Jr.

Publication: MARINE CORPS GAZETTE, July, 1957, p. 8-13.

Annotation: Cites the need for a balanced fleet with its inherent landing element as the best means of protecting American interests rather than a military capability design for nuclear warfare alone, which would jeopardize the ideals it was designed to protect.

Title: *Has the H-Bomb "Sunk Our Navy?"*

Author: Burke, Arleigh A., Admiral, United States Navy.

Publication: THIS WEEK MAGAZINE, July 28, 1957, p. 7-8, 20.

Annotation: A statement by the Chief of Naval Operations on the Navy's new strategy to fight a modern war.

Title: *America's Widening Military Margin.*

Author: Murphy, Charles J. V.

Publication: FORTUNE, August, 1957, p. 94-96, 218-226.

Annotation: Analyzes the present state of the missile program, and finds it on schedule. Our technological lead is held to have important effects on disarmament talks.

Title: *Why a Sailor Thinks Like a Sailor?*

Author: Wylie, J. C., Captain, United States Navy.

Publication: UNITED STATES NAVAL INSTITUTE PROCEEDINGS, August, 1957, p. 811-817.

Annotation: Seeks to explain the reasons why each of the services has opposing views on national defense problems by explaining reasons behind the development of naval strategy and war planning.

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